Needs Assessment
for
Columbia Police Department
and
Public Safety Joint Communications

City of Columbia, MO

DRAFT REPORT

May 2012

Prepared by

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Introduction

This report constitutes a study concerning the growth and resultant facility needs for the City of Columbia, Missouri. The architectural firm of Brinkley Sargent Architects was asked to formulate the projected space needs for the Police department and for the Public Safety Joint Communications (PSJC). The scope of the study included five distinct activities:

1) To examine how the Police and the PSJC will grow through the next twenty years and establish the needs of these departments throughout that period of time,

1) To examine renovation possibilities at the current downtown facility to house some portion of the Police, and possibly the PSJC,

2) To study the possibility of up to two precinct police stations and possible locations for those precincts and PSJC at locations within the City of Columbia that would provide for more efficient Police coverage for the City as Columbia continues to grow through the next two decades,

3) To examine possibility of replacing the existing downtown facility with a new building at the same location, and.

4) To establish workable timelines that the various proposed options can occur, establishing budgets for each option based upon those timelines.

The Executive Summary precedes the study and provides a synopsis of the findings of the report. The Existing Facilities Section catalogues the existing Police facilities and their general condition. The Planning Context Section follows and establishes the basis of the report. The Police Space Needs section is the heart of the study and forecasts the needs of each department in terms of square footage. This section is sub-divided to provide a separate section for each of the proposed options for the Police, each of which include a downtown facility and two precincts, and a separate section for the PSJC facility needs. Section 6 addresses the areas recommended for the location of the two Police precincts. The Appendix provides supporting documents that were used in the study.

City Information and Background[1]

In 1818, the Smithton Land Company purchased more than 2,000 acres and established the village of Smithton about 1 mile northwest of the current site of the Katy Station Depot (4th & Broadway.) Previous to the establishment of this settlement the area had been frequented by Daniel Boone and his sons, who established a saltlick about forty miles northwest of Columbia in 1806. Preceding the Boones, Lewis and Clark passed within a few miles of the area as they travelled the Missouri River as part of their expedition to the Pacific Ocean in 1803 shortly after the United States gained the Missouri Territory from France. Approximately 130 years before Lewis and Clark, French explorers, led Marquette, had traversed the country and established a fur trade with the Osage and Missouri tribes that roamed the area before, and during, these brief European forays into the region.

The year 1821 saw Missouri become the 24th state and saw the Smithton settlement relocated, due to lack of adequate water, and re-established as Columbia in what is now the downtown district. A mere five years later, in 1826, Columbia incorporated. Columbia benefited from trade generated by the Santa Fe and Oregon Trails throughout the 1850's. The Missouri Kansas Texas (KATY) railroad spur further boosted Columbia's growth. Today, the MKT trail spur connects Columbia to the Katy Trail State Park, the longest rails-to-trails conversion project in the United States.

Columbia's long history of higher education began in 1833 with the establishment of Columbia College (unrelated to the current Columbia College). The institution today known as Columbia College began in 1851 with the establishment of the Christian Female College by the Disciples of Christ Church, the first women's college west of the Mississippi. It became a co-educational, four-year college in the 1970's and changed its name to Columbia College. Stephens College was first established as Baptist Female College in 1855. It changed its name to Stephen's College for Women in 1870. Today, it is one of the most widely respected women's colleges in the United States. The University of Missouri was founded in 1839.. Six counties bid to become the university's home with Boone County far outstripping its rivals in the amount of money, land and buildings secured for the project. The state did not appropriate funds for the University until 1867, following the end of the Civil War. With the burning of Academic Hall in 1892, there was talk of moving the University to another community. In order to keep it in Columbia, citizens raised $50,000 for the construction of Jesse Hall. Today, the University of Missouri has a student population of more than 30,000

and is the City of Columbia's single largest employer.

Other top industries within the City are healthcare and insurance. The first hospital established in the City opened in 1830 and Columbia now has one of the highest hospital beds per capita ratios in the country. A number of large insurance companies have their headquarters located in the City. From the humble beginnings as a small enclave of 20 settlers in 1821, Columbia has grown to over 100,000 today and looks to continue its growth to over 150,000 by 2030.

Purpose of Study

The Study was developed in response to City leader's need to determine the space requirements and implementation options of these requirements for the Police department and the Public Safety Joint Communications. This Plan provides a guide for both the near-term (at 2021) as well as long-term (at 2031) space needs with budgets, department adjacencies, site requirements, and space standards.

Methodology of Study

This report is based on preliminary data gathered by the City, the Police Department and the Public Safety Joint Communications staffs and the architects, as well as numerous meetings with staff members from each department. This information includes current and future population, staffing, staff ratios, and department staff and City vehicle parking requirements, and adjacency criteria.

After reviewing this preliminary data, on-site meetings were held with representatPives from each of the departments studied. Participants were encouraged to think about the long-term goals and needs of their departments.

The developed data resulted in projected staffing growth numbers at the milestone years of 2021 and 2031. Some staffing numbers were compared to cities of similar size and demographic composition including a sizeable university student population. Adjustments were made as required and reviewed with key departmental staff members.

Goals for this Study

Several Goals for this study were established at the beginning of the process. These include:

- Analyze Departments and Determine Space Needs
- Determine Condition and Constraints of Existing Police Facility structures and site
- Study location and space options for two Precinct facilities in addition to downtown location
- Establish options to provide the needed facilities in various combinations and provide timelines and budgets for each developed option.

References

1. Excerpts taken from a historical compilation found at the websites www.city-data.com and http://en.wikipedia.org/wiki/History_of_Columbia,_Missouri

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Executive Summary

Premises

When examining this study it is important to bear in mind that a number of items related to how the study was undertaken and the nature of the conclusions are based on several critical premises. If any of the following statements are rendered untrue, the conclusions of all that follows will need to be revisited. This is not to say that those conclusions will with certainty be changed, but the need will exist to re-examine them.

1) The City desires that a Police presence remain downtown. The site of the existing downtown Police/PSJC facility will remain in use as a Police or combination facility.

2) When considering the renovation of the downtown police facility, the goal is to bring the resulting facility into compliance with the appropriate codes and create a first class, fully functional police facility with as few compromises as possible in a renovation environment. This would entail at the least full replacement of all HVAC mechanical equipment, all electrical systems including all lights, the additional of a lighting control system, replacing all exterior glass and sealants.

3) There will be two Precinct stations in addition to the downtown facility. One third of patrol and investigations staff will be housed at each facility.

4) The intent of the of the Public Safety Joint Communications / Office of Emergency Management facility is to provide new space that is large enough to combine the communications and emergency management functions into a single facility, and that facility is to be designed to survive and remain functioning following a direct hit from an EF-5 level tornado.

5) The date for starting design on the earliest phases of the overall project is set at June 2015 for all of the base estimates in all of the “build as needed” scenarios and January 2013 for all of the “less construction cost” scenarios. Under the “build as needed” track, design on the final facility begins in 2020, the “less construction cost” starts this design in 2015.

6) For purposes of creating budgets within this study it is assumed that all site utilities and fiber optic cabling are available at all sites to be considered, and that no site utility impact fees will be assessed the City. Additionally, the budgets within this study do not reflect the cost of purchasing any land for any facility, thus any land purchase costs must be added to the budget amounts shown.

This report has determined that there are three viable options for the City of Columbia to consider regarding the development of a new Public Safety Joint Communications / Office of Emergency Management, two new Police facilities and the renovation or replacement of the existing Police Headquarters located in downtown on the south side of East Walnut Street on the block between North 6th and North 7th Streets. The initial steps in all three Options, under either the "build as needed" or "less construction cost" tracks must be to secure locations to construct the new facilities. These new buildings must be completed to allow for the existing downtown facility to be emptied of staff. When all Police and PSJC personnel have relocated out of the existing building, it can then be completely renovated or replaced to provide for the appropriate Downtown Police facility.

Option One involves a complete renovation of the existing downtown facility to serve as Police Headquarters and home to a third of the Patrol and Investigations staff, as well as space for Records; Precinct 1 North to house another third of Patrol and Investigations staff, all SWAT functions, Property and Evidence, and Crime Scene; Precinct 2 South to house the final third of Patrol and Investigations staff; and finally, a new Public Safety Joint Communications/Office of Emergency Management facility. Under the "build as needed" track all construction is completed in August 2022 at a final cost for all projects of $58,318,028. Under the "less construction cost" approach all construction is completed in January 2017 at a final cost of $44,928,367.

Option Two involves a complete renovation of the existing downtown facility to serve as a Downtown Precinct Station and home to a third of the Patrol and Investigations staff, as well as Traffic and Juvenile Investigations; Headquarters Precinct North to house another third of Patrol and Investigations staff, all SWAT functions, Property and Evidence, Crime Scene, and Records; Precinct South to house the final third of Patrol and Investigations staff; and finally, a new Public Safety Joint Communications/Office of Emergency Management facility.

Under the "build as needed" track all construction is completed in August 2022 at a final cost for all projects of $61,206,640. Under the "less construction cost" all construction is completed in January 2017 at a final cost of $47,038,220.

Option Three involves the demolition and replacement of the existing downtown facility with a new building on the existing site to serve as Police Headquarters and home to a third of the Patrol and Investigations staff, as well as space for Records, Property and Evidence, and Crime Scene; Precinct 1 North to house another third of Patrol and Investigations staff and all SWAT functions; Precinct 2 South to house the final third of Patrol and Investigations staff; and finally, a new Public Safety Joint Communications/Office of Emergency Management facility. Under the "build as needed" track all construction is completed in August 2022 at a final cost for all projects of $70,808,996. With the "less construction cost" track all construction is completed in January 2017 at a final cost of $56,124,355.

While the goal of this study is not to identify specific pieces of property for consideration for the other facilities, it is to provide fairly defined areas in which to look for properties that meet the space requirement needs for whichever facility option the City ultimately decides to pursue. Two areas, one north of downtown and one south, have been established as being the most advantageous for these facilities:

- The north facility should be in the area of the intersection of Paris Road (Missouri Route B) and East Brown Station Road.
- The south facility should be in the area of the intersection of Grindstone Parkway and South Rock Quarry Road.

The recommendation of this study is that the City pursue Option 1 as this is the lowest cost option and meets all of the anticipated needs of the Police and PSJC/OEM. An additional recommendation is to co-locate a standalone PSJC/OEM facility at one of these sites rather than seeking another piece of property. Co-location provides an additional cost savings opportunity by allowing joint use of certain spaces which makes possible a 3,500 sf reduction in program space, thereby saving approximately $1.3 million dollars.

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Existing Facility

Analysis of Conditions and Shortcomings

This section of the Needs Assessment study documents the current constraints and deficiencies of the Columbia Police Facility. Tours of the building, supporting exhibits, photos, and staff comments were used to establish these shortcomings.



Address: *600 Walnut, Columbia, MO*

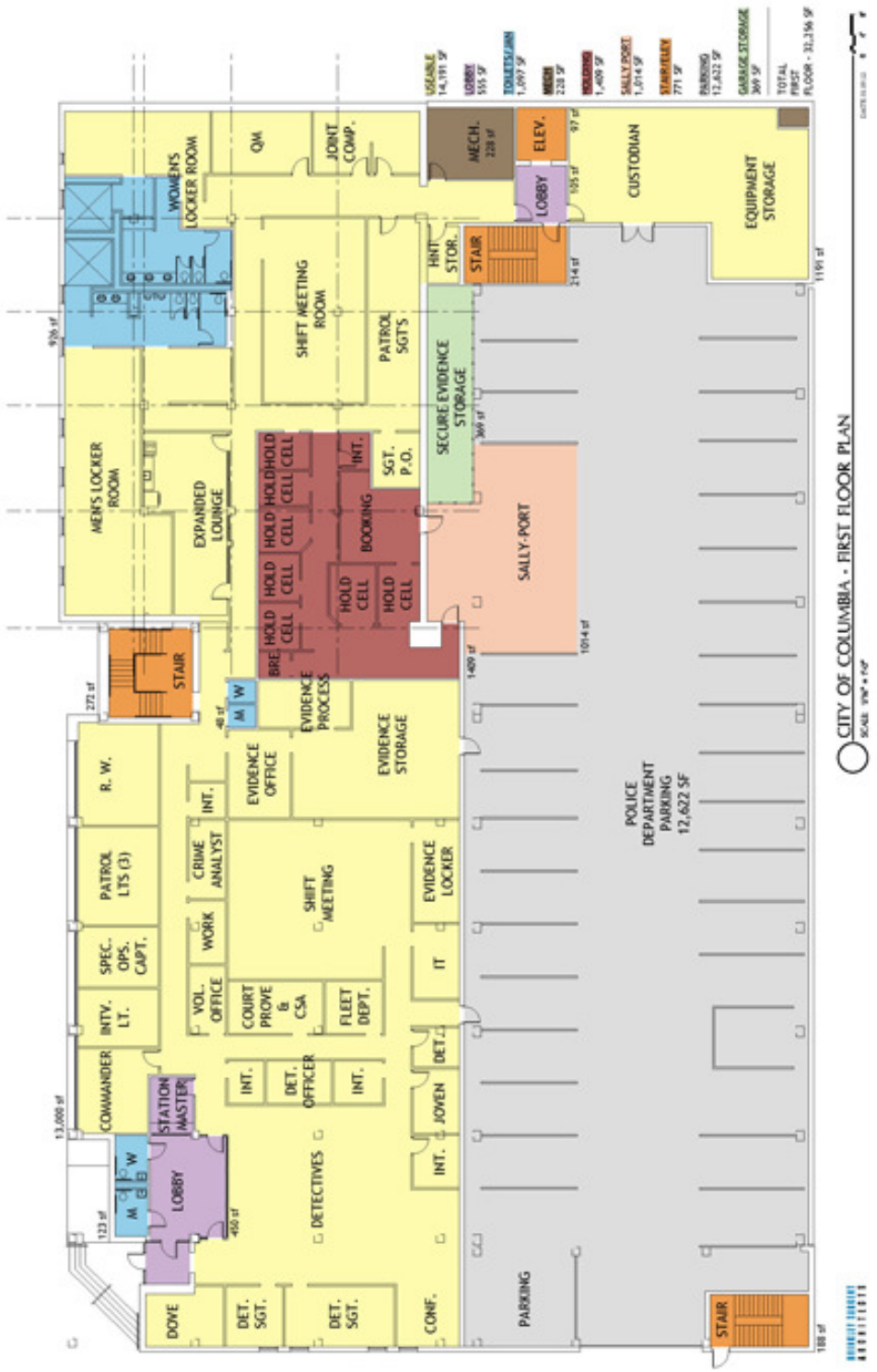
Building Area: *3-story Building = 31,043 SF*

1st level Garage Storage/Sallyport/Parking = 14,005 SF

2nd level Garage Parking =22,056 SF

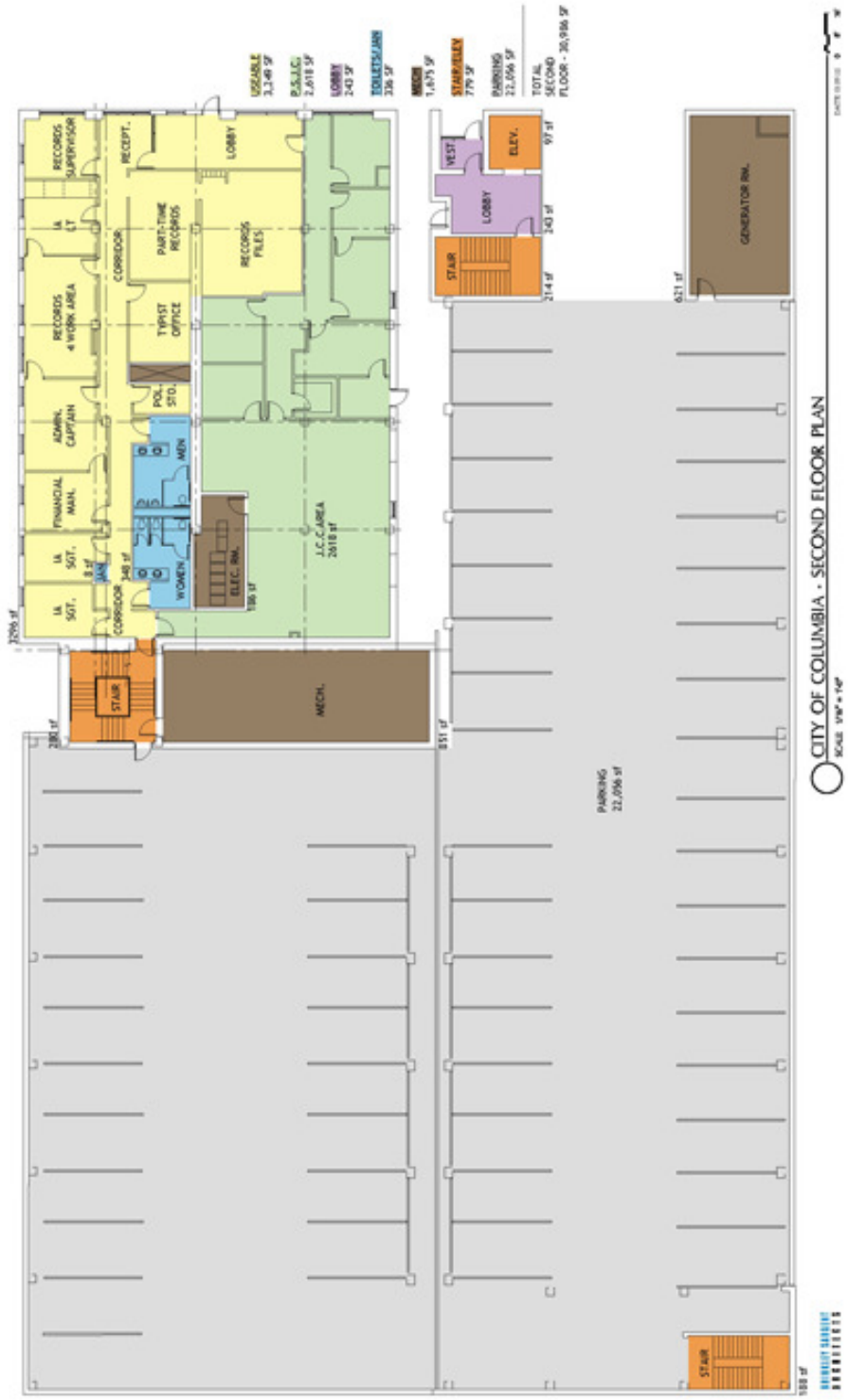
Police Building Plans

FIRST FLOOR



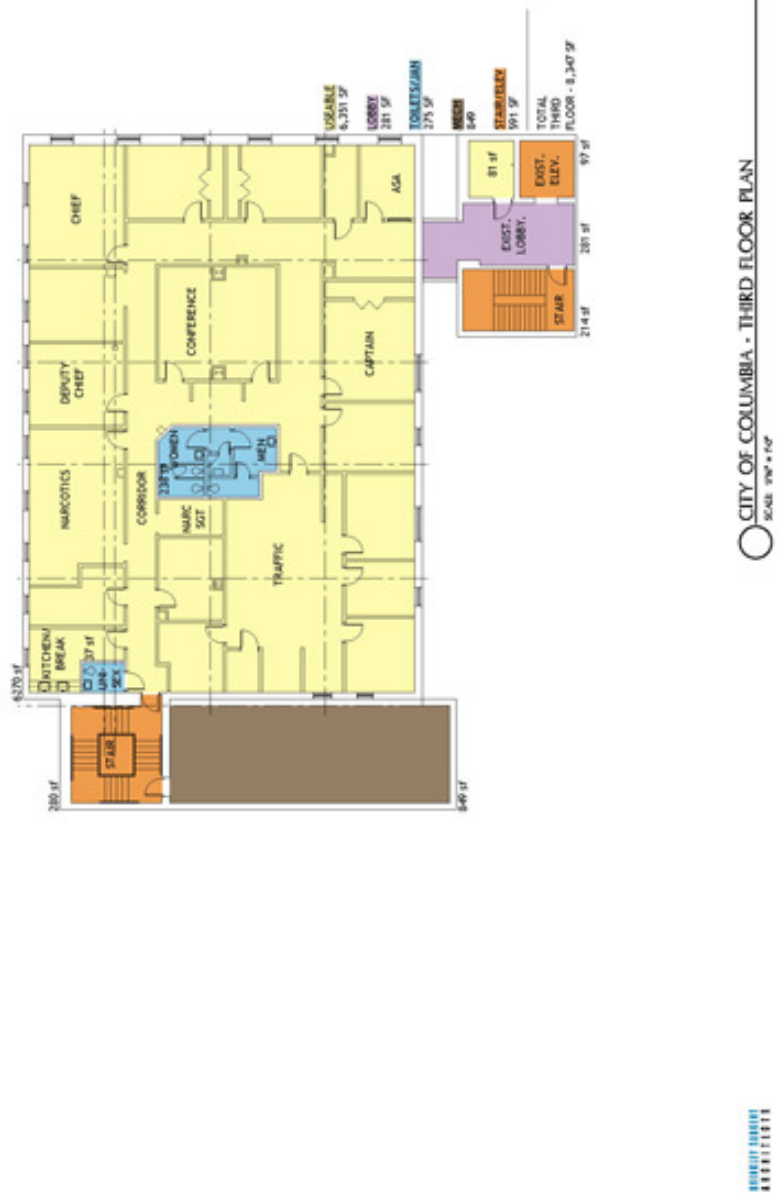
Police Building Plans - continued

SECOND FLOOR



Police Building Plans - continued

THIRD FLOOR



Columbia Police and Public Safety Joint Communications Building

600 East Walnut
Columbia, Missouri 65201
Project No. 21009 Report by Gary Beeman, AIA

March 2012

General

This report seeks to identify the current condition of the building and identify obvious code and functional issues for consideration in development of budgets and strategies to accommodate potential renovations for Police or PSJC uses.



In general, the building is in moderate condition consistent with what you would expect for a building renovated over 30 years ago. We were not able to ascertain the precise make- up of exterior walls [destructive testing was not pursued and wall sections were not available].

The costs associated with potential future upgrades or changes in use would depend on the needs of those planned future uses. Spaces that have mission critical uses, like the PSJC, lab spaces, evidence processing and storage, jails, etc. have specific needs that make them much less flexible [and therefore much more costly] to accommodate/ renovate. Any work on the first floor at the shorter/ older portion of the building will be more challenging and likely more expensive due to the short headroom. The floor at that entire area appears to have flatness issues.

The architects were accompanied on their visual tour of the facility by Craig Klein, a former longtime member of the police department; Kent Branson, of the City's Building and Grounds Department; and two members of this staff.

Chronology of Construction

The building was constructed in phases and has changed use several times.

The original building was reportedly constructed by the WPA in the early 1930's and occupied in 1933 as a fire, police and municipal court facility.

An addition was built and occupied in 1978. It encompassed adding the third floor office area; the parking deck and garage; and lower level west leg [beneath part of the parking deck]. At this time fire functions were no longer occurring and the police department and PS joint communication became the primary user of the facility; the local City owner power and light division occupied the third floor.

Renovations occurred in 2007, with the power and light moving out, and police/ PSJC occupying the entire building.

Code

Many of the items listed as not being code compliant are for the current code. Americans with Disabilities Act compliance is mentioned throughout as simply ADA to maintain brevity. Other codes referenced would be for the current International Building Codes and other applicable International Code series requirements. The City of Columbia is currently utilizing the 2009 version.

The building is not currently sprinklered. Current codes may require it to be sprinklered to meet the area and construction type requirements of the new code. These would be affected by the intended use and occupancies determined to be utilized in the spaces.

Asbestos

Reportedly removing all asbestos was addressing in 2000

Foundation

Reportedly the foundation at the older portion of the building was constructed of rubble, that isn't very deep. The additions appear to all have concrete foundations. There is a small crack at the southeast corner of the dock/ generator building on the southeast corner of the project. It doesn't appear to be an issue, but should be monitored, as one observation doesn't provide a timeline. It is efflorescing some white salts type material; which is typical for that type of a crack- more of a concern is that it may allow moisture penetration to occupied spaces beneath. A similar condition at the southwest corner of the parking deck has been sealed with an asphaltic type waterproofing.

Reportedly underground water has been a recurring problem, especially along the north end of the building. A few years ago a second sump pump was added in a locker room; it reportedly runs almost constantly.

Columns appear to be steel and concrete at locations visible.

Roof framing is reportedly wood trusses. This is not visible from the underside as there is gypsum board [fire proofing] installed on the underside, with batt insulation installed on impaling pins on the underside.

Third floor construction at the addition is steel joists, deck and concrete construction.

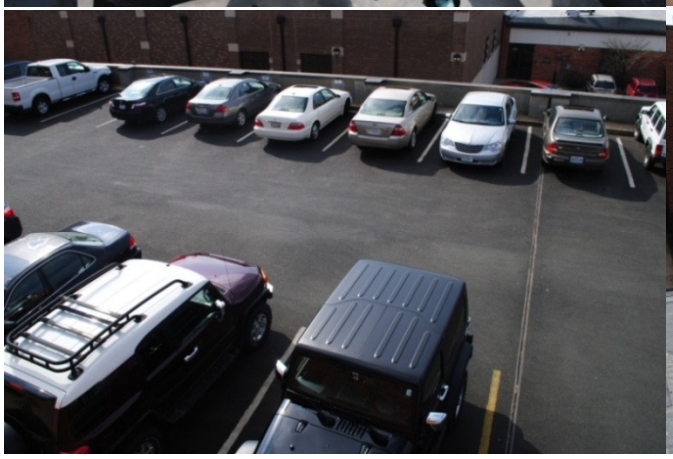
Roof

The existing EPDM [rubber] and built- up roof areas in fair condition. There is evidence of several leaks occurring at the high roof. The EPDM portion of the roof was reportedly installed 5 years ago. Appurtences like metal flashing for piping penetrations appear to be much older than this somewhat recent re- roofing. They appear to be potential causes for leaks [that are evident and were reported].

The type and thickness of the roofing insulation is not apparent from observation; based on the age of the building and typical construction utilized at that time it probably would not meet the current energy code standards.















There is a small amount of metal roofing at what is currently the main entrance. Its finish has faded, but appears to be performing acceptably other than the aesthetic issue.

There is an open wire trough around the west to north sides with a conglomeration of exposed wiring.

Parapet. The east and north elevations have a tile coping material, likely made of terracotta that matches the detailing that occurs at two locations down approximately two feet and 3.5 additional feet from

the top of the wall. It is not evident, but appears that the roofing system does not extend under this portion of the top of the wall. It would be desirable if it did/ could. The joint material between the tiles has failed at several locations. Recommend these be repointed with mortar- color to match the tile, raked back for a proper sealant profile and have sealant installed on top of the mortar. If the tiles are removed then a waterproofing system that sheds water and allows these to be UV protection and decorative is recommended.

Metal/ EPDM coping is the material at the rest of the facility- is appears to currently be in a serviceable condition. Similar to the tile coping- we suggest a waterproofing material be installed beneath this coping.

Neither roofing assembly appears to be fire- rated. Code review for building type may require this.

Rooftop Equipment

There is an antenna that is surface mounted on the roof. Reportedly it is the likely cause of ongoing leaks that appear beneath it. Further, there is a small split system condenser located just east of that that has a suspect piping penetration that is rusted and it looks like it could leak also [air and water]. Insulation needs to be replaced at condensation lines. There is no fall protection adjacent to the rooftop equipment and roof edge- no parapet condition at the west side of both the high roof and the roof at L3 height. This is especially hazardous the Level 3 height on the west side, where RTU's and equipment is installed near the edge of this small roof.

Holiday lighting appears to have been installed at the roof and along the north elevation of the building. Some of the penetrations for hanging this has left open holes and cabling.

Exterior Wall Materials- the brick veneer in general appears to be in good shape.

There is no mention of when this was last sealed, but likely beyond the recommended time to reapply exterior silane, or siloxane type sealers for the brick and mortar.

There are a few locations where control joints [expansion joints in Brick Institute of America terminology] should have been installed. At these locations the brick and mortar have cracked- probably due to thermal and moisture induced expansion and contraction. Recommend that control joints be installed at these locations [west elevation, on the northwest corner of the elevator addition.

West elevation at level 3 has windows with adjacent wall materials that have been modified. Cracked brick is occurring adjacent to these single glazed operable double- hung aluminum framed windows.

The south elevation reportedly leaked so much the brick veneer was covered with a weather barrier stucco system.

North elevation has an electrical weatherhead above the stair egress door that is mounted horizontally- it appears it isn't performing properly [not being vertically installed].

East elevation has full height glass and at least one light of glass at the reception area has what appears to be a bullet hole in it. There are also many leaks apparent along that L2 area exterior wall.

West elevation has had some considerable amount of brick replaced toward the south end of that wall

The existing aluminum framing system finish is discolored at several locations;

Some of the glass is insulated and the sealant that was to keep the spacer between the two lites of glass in place [at the edge of the glass] has failed.

Entrances have various accessibility issues- see lists for more specifics

Soffit. There is a plaster soffit located between the southeast stair/ elevator addition and the building that is showing signs of water draining onto and leaching out the plaster at this location. Installing drips at the edge of the vertical surface would minimize future deterioration. This area should be recoated, or at least painted [depending on the construction makeup].

Lintels. Several loose brick lintels have reportedly been replaced; others appear to also be rusting.

Parking Deck

The drain in the middle of the deck has had a galvanized liner installed somewhat recently- apparently to conduct water that was leaking on the construction/ walls, equipment and cars parked beneath. This remedial action doesn't look to be a very long lasting remedy as it is already showing signs of corrosion.

The majority of the parking deck was recently coated; but only at the parking locations. The north perimeter sidewalk, and somewhat along

the south side is showing some considerable deterioration of the concrete. Exposed rebar is rusting at some stub column locations.

Leaks at the far west end of the deck and related mold was reportedly remediated in 2000. Having a traffic deck, with the moving/ stopping of the vehicles makes for a challenging water- proofing installation that will require ongoing maintenance.

















HVAC System-

The majority of the existing equipment was installed no earlier than the 1978 completion date- so the equipment is probably a year or two older than that. The design parameters of that time were such that the system is likely under- designed for what is considered comfortable today [current expectation are to keep you warm, even on extremely cold days; and cold on extremely hot days.] Further, many

of the current users wear bullet- resistant vests/ armor that are very hot to wear- thus wanting to increase the AC side capacity of the system at those areas. The system design [multi- zone] is considered somewhat archaic at this date and it isn't very user friendly for a 24/7 type operation- as it is in either heating or cooling mode. Some portions of the building want to be in heating, while others have equipment or personnel density that would require cooling- even on cold days. The communications portion of the project doesn't appear to have a redundant system.

Controls are pneumatic and appear to be very old. Replacement parts of a system of this age are typically extremely difficult, and therefore expensive to locate.

Exhaust for the lower level appears to be into the parking area. That might questionable depending on the types of chemicals utilized in crime scene and exhausting of bloody evidence, etc.

Electrical systems

The building was constructed prior to the increase in electrically operated equipment. Most of the panelboards observed are very old and replacement parts would not be available. An engineer would need to review to see if the wiring systems would meet the current code. Reportedly the circuit breaker trip regularly; indicating the circuits are overloaded [panels are not large enough].

The PSJC area has one UPS; not sure where the redundancy is with that system [would require more of an electrical engineering evaluation/ study to more completely understand].

The radio tower doesn't have the grounding we often see where the coaxial cable enters the equipment room [at the bottom of the tower].

There is an electrical transformer in the parking garage- without a rated enclosure.

There are so many panels at so many locations [from the building being added onto and renovations over the years of different uses] that it would be extremely difficult to know which panel serves which area/ equipment.

Electric gear and panelboards do not have a fire rated separation from the rest of the facility. The size of the service at each location would be the factor to determine if this is compliant or not.

Emergency Generator

The emergency generator is located in a storage room that has a dock door on the east side.

Lighting

Exterior site pole fixtures at the parking deck are maintained by a regional parking district.

Interior – multiple types of 2' x 4' fluorescent fixtures have been utilized with parabolic reflectors on level two and lensed type at Level 3. Incandescent fixtures were utilized at some service locations.

Daylighting potential exists on the upper two floors, but is limited on the south and east of the lower level due to being underground and under the parking deck.

Landscaping

The site is urban and there is no landscaping.

Site and Building Graphics will probably need to be modified for the new uses.

Electrical service

It appears the building is fed from the alley to the south of the facility. One transformer exists in the lower level of the garage.

Fire Alarm

Typically when we renovate a building of this age the system is not addressable and has to be upgraded/ replaced.






DO NOT
SHUT
OFF!!
I-P2-E
I-P2
LEAVE OFF
SEGWA



Fire Sprinkler – There is no fire sprinkler system.

Domestic water – there appear to be more than one service to the building; with likely additional service available.

Interior building finishes are typically drywall partitions, hollow metal and wood door frames, with wood doors. The types of doors, frames, texture, and etc. change as you progress through the different evolution phases of the facility. The circulation is somewhat inefficient- likely responding to different infill and use changes over the years.

Interior Construction.

Third floor walls have drywall construction that appears to be fire-rated. Penetrations for services installed since the original construction have not maintained this fire rated construction. Further the department has an open- door policy that is contrary to strict interpretation that these doors are to be closed [believe they are closed/ locked when someone is not in the room- but general areas might be an exception].

Fire walls appear to have been penetrated to accommodate other work [data cabling] that might affect plenums/ separations.

Toilet room walls and floors

The multiple user toilets are generally not ADA compliant for several reasons including turn- around space; toilet compartment size; countertop/ sink height and configuration; water closet flush valves aim the wrong direction. The rooms will not be easy to modify as the space required to become compliant will require that the physical size of the room will need to get larger.

Plastic laminate countertops are generally failing and need to be replaced.

Drinking fountains often are not ADA compliant [don't have the low/ hi configuration] and appropriate controls.

Locker rooms don't appear to be ADA compliant- toilet stalls accessible entrance space, grab bars; showers; dressing bench/ mirror; accessible lockers.

Floors

Generally the floors show wear consistent with the age of the facility. At the first floor there are numerous floor flatness issues.

There are open expansion joints at L1

Building Doors and Hardware

Access control is provided to the exterior perimeter by proximity type card readers.

Lower level doors and frames are wood. L2 has rated corridors with associated doors and hollow metal frames. Cylindrical locksets with levers are the typical hardware.

Elevator

There is one elevator at the far southeast corner of the building. It is hydraulic, and is not currently in a separate elevator lobby. The cabs have plastic laminate walls and fluorescent lighting.

Reportedly the pump was overhauled approx. 5 years ago; controls appear to be original equipment. Original installation date on equipment tag say 1985. 2500 lb capacity at 115 fpm travel speed.

Handrails/ guardrails- at exit stairs are not code compliant; they would allow a 4" sphere through and are not the proper height- and don't have handrails within the stair at the guardrail side.

Stairs

The stairs are not compliant with the current codes. Riser heights and tread lengths have changed since this building was constructed. The handrails/ guardrails don't meet the 4" sphere rule, required heights, edge drop- off. The configuration of the middle north stair isn't compliant in directing traffic out at grade. That stair also has a skylight that may not maintain the required shaft rating.

The northeast public entrance handrails are not ADA compliant.

HVAC shafts aren't fire rated; the large atrium area doesn't have fire rated doors/ frames around it and it doesn't have a smoke control/ evacuation system.

Jail Cells

The cells don't appear to meet American Correctional Association standards. We are not aware of other requirements from the state for jail standards. Some due to size- others lack plumbing; none appear to be ADA compliant. Guidelines for specific use and any state requirements would require further investigation.














1106
AUTHORIZED
PERSONNEL
ONLY

Site

This facility is located in the downtown district and has utilities and services that are consistent with this type of area. No major issues related to the site, as it relates the buildings general condition were noted. Location as it relates to desired functions and location are not factored into this survey of the condition of the facility. Minor foundation issues were noticed. The largest site variable is probably the underground stream/ water flow. The site does slope with the eastern end one floor higher than the western end. No vegetation exists on this site. The solar orientation of is mainly east/ west orientation which is generally preferred from a solar gain standpoint. Site drainage appears to be adequate; no issues were identified. Site access is limited to one entrance for each parking area- typical for a downtown parking garage, but a potential negative for an instant response if something blocks that entrance. Pedestrian circulation to the facility is good; Columbia appears to have an active pedestrian character. That the public have access to police/ JC vehicles, radio tower, electrical and water, air intake, the building in general would not meet the guidelines of separation from a security standpoint. Which of these attributes are given more precedence might be determined by the future uses of the facility.

Parking is always a challenge when patrol use is part of a facility. This is due the patrol staff parking their personal cars- for two shifts, the department vehicles. Having more shifts, as they currently have, may reduce this some, but it still puts a strain on the available spaces. Potential future uses within the building will need to be examined to determine if the current count is adequate.

Site paving – Accessible parking is a concern as some that are installed do not appear to be ADA compliant. Sealant needs to be reworked at some locations where walks abut the building.

Anticipated Costs Related to Bringing the Building up to Current Codes

Building code issues include the following:

- Stairs and stair guard/ handrails
- Doubt there is a vapor barrier at the on- grade flooring systems- especially at the WPA construction. With current flooring materials using water based adhesives, having air conditioning and other factors- this vapor drive could very likley cause issues. One potential remedy would be to add something on top, but this solution may not provide a continuous barrier if existing walls are to remain.

Energy Code/ LEED. Missouri currently has no current state energy code. Seven of the eight states contiguous to Missouri have adopted the IECC, and Arkansas has adopted an ASHRAE standard. There is a potential- and how to gauge that is beyond this survey's scope- that a state energy code could be adopted. Our predictions related to this are based on the adoption of the International Energy and Conservation Code.

Information on the existing construction is not known; distructive test measures were not undertaken to attempt to determine existing construction. We base our recommendations and assumptions on what 'typcial' construction was using at the time this was constructed. An energy model and much more extensive study would be required to provide precise needs- anticipated additional work includes the following:

- Additional roofing insulation [thickness]; and the roof will likely be over half its anticipated life when the project gets under construction.
- Having a reflective roof.
- Exterior walls type and thickness of batt insulation is not known- new construction is required to have continuous insulation on the exterior of the studs.
- Exterior windows and storefront framing are not thermally broken. The glass does not have a low e coating.
- At below grade exterior wall locations we doubt there is rigid insulation at and below grade.
- Light fixture efficiency and lighting controls- the current fixtures would likely need to be replaced and a lighting controls system added, with daylighting and automatic turn off features.
- Plumbing fixtures- toilets and lavatories would likely need to be replaced for more efficient [less water use].
- HVAC systems- efficiency, air quality issues, controls, comfort and desired zoning capabilities, and general age and life expectancy of the existing HVAC equipment would mean a total replacement is anticipated.

OSHA

- Fall protection at rooftop HVAC equipment

Other Recommended Renovation Costs

Remove and replace sealant at all exterior wall- control joints and around aluminum framing and windows.

Replace rooftop penetrations- sheet metal and rework penetrations to be air and water tight.

Existing finishes- especially flooring will be at or beyond a normally anticipated life cycle- and are being considered as total replacement. Also anticipated modifications to uses/ walls will likely lean to replacement.

Ramifications of Anticipated Renovation

With the total replacement of the HVAC equipment and electrical systems the building should be expected to be totally vacated during the construction phase. A upcharge for the short floor to floor at level one at the older portion of the facility, due to the shorter floor to structure height.

4

Planning Context

Planning Horizon

The most difficult aspect of planning any municipal facility is anticipating future space and use requirements. The most common design error made concerning this building type is that a needs assessment is not undertaken which can result in the building capacity being exceeded within a short time after occupancy.

This study is meant to be a long-term road map for the facility needs of these departments. Therefore the hallmark time frames of 10 years and 20 years were established for this study. This time frame alleviates the issue of the departments outgrowing the expanded facility shortly after occupying it.

Population Growth

The City of Columbia had a 2000 population of 108,500. The reported population in 2011 used for the purpose of this study was 132,800. In looking at the continued growth in the future, staff and the planning team created a list of comparable cities against which to hallmark growth. The cities were selected based on being a mid-sized city with a university within the city limits. (Refer chart below.) For purposes of this study, the possible population growth at 2021 of 132,800 was utilized, while 2031's population is 159,400.

City	Population/Metro	Geographic Size	Distance to next Metro Area (40K+)	University	Students
Columbia	**108,500**	**63 sq.mi.**	**30 mi. (Jefferson City)**	**University of Missouri**	**34,000**
Springfield, MO	159,500/436K	74 sq.mi./3K sq.mi.	60 mi. (Joplin)	Missouri State	21,000
Fort Wayne, IN	253,700/414K	111 sq.mi./1.4K sq.mi.	95 mi. (Indianapolis)	Indiana-Purdue Fort Wayne	14,000
Fort Collins, CO	144,000/298K	53 sq.mi.	12 mi. (Loveland)	Colorado State	30,000
Boulder, CO	103,700/293K	25 sq.mi.	12 mi. (Broomfield)	University of Colorado	30,000
Denton, TX	200,000/6.145M	62 sq.mi.	15 mi. (Lewisville)	University of North Texas	36,000
Norman, OK	111,000/1.227M	190 sq.mi.	9 mi. (Moore)	University of Oklahoma	30,000
College Station, TX	94,000/203K	40 sq.mi.	4 mi. (Bryan)	Texas A&M	50,000
Knoxville, TN	179,000/655K	98 sq.mi.	120 mi. (Chattanooga)	University of Tennessee	28,000
Tuscaloosa, AL	90,468/210K	70 sq.mi.	50 mi. (Birmingham)	University of Alabama	32,000
Athens, GA	115,000/189K	118 sq.mi.	60 mi. (Atlanta)	University of Georgia	36,000
Columbia, SC	129,000/768K	139 sq.mi.	60 mi. (Augusta)	University of South Carolina	28,000

Columbia, MO predicted growth: 132K at 2021, 159K at 2031

Staffing Projections

As with the Police, projecting staffing requirements is one of the most crucial aspects of a successful needs assessment. Projections of staff requirements for the Public Safety Joint Communications were made using past history, present staffing, industry recommendations and staffing growth of comparable towns in conjunction with Communications and Emergency Operations staff. Consideration was also paid to the possibility of the Office of Emergency Management growing into a fully separate, though linked, department.

The organizational charts on the following pages show both the current staffing for 2011 and the expected growth of the PSJC and the Office of Emergency Management (OEM). This growth is based on expected staffing for the hallmark years of 2021 and 2031. The distribution and growth of personnel is based on discussions with the PSJC staff. In addition, each of these bench mark years is shown in comparison to other cities of similar size and composition.

Presently, the Public Safety Joint Communications and the Office of Emergency Management function as a merged department with a total staff of 38. The current staff per capita is 0.233 staff per 1000 residents. The department is projected to grow to a total staff of 71 with a ratio of 0.385 in 2021, and the staff will total 90 in 2031 with a ratio of 0.437. These numbers are based on projected population numbers for Boone County which currently stands at 163,000 and is expected to grow to 184,500 in 2021 and 206,000 by 2031. PSJC provides county-wide services which creates a greater challenge in seeking reasonable comparables. With input from the PSJC staff, the study team settled on using Springfield, MO as the comparable. Significant differences remain. Though Springfield serves the same function as a county-wide service for both Police, Fire and County, just as PSJC does, they do not dispatch EMS, which is a service provided by PSJC. The volume of EMS calls explains the discrepancy in the staffing numbers between PSJC and Springfield.

PSJC/OEM Staffing

Public Safety Joint Communications / Office of Emergency Management

				Springfield	
Year	2011	2021	2031	2011	
Population	163,000	184,500	206,000	275,000	
	Current	Add'l	Add'l		
PSJC/Emer.Man. Director	1				
Assistant Director		1			
Exec. Admin. Asst.	1				
Admin. Services Manager	1				
Operations Manager	1		1		
Training Manager		1			
Trainer		1			
Shift Supervisors	4	1			
Emergency Telecommunicator (14)	25	22	18		
System Support Analyst	2	1			
Admin. Assist.	1	1			
Public Information/Comm Officer	1	2			
ASA		1			
Tech. Staff (OEM)		1			
Tech. Staff (PSJC)		1			
Part-Time Personnel	1				
Total (Current + Add'l)	38	71	90	73	92 ‡
Staff Per Capita	0.233	0.385	0.437	0.265	0.335

Growth projections from MissouriPartnership

PSJC Staff
OEM Staff

‡ Budget notes 9 unfunded positions for Emergency Communications. 10 personnel noted for OEM.

Security Levels

Due to the nature of both internal activities as well as visitors to any public safety facility, various security levels are required within these buildings. Separation of the Staff and Public entries is important to the security of the facility.

Police Security

The Police public lobby will remain open 24 hours. The Station Master is the public reception point for most visitors to the police

building/s. A secondary public entrance may need to be provided for Property/Evidence. The remaining portions of the building will have controlled access by card-type authorization.

Once an individual has passed through the first level of security, a second level of access qualifications will be required to gain access into the Records area as well as other public functions such as Police Administration and Operations Support. A third level of access requirements will be used at the Holding area, Evidence and Crime Lab areas.

PSJC Security

The public lobby for the PSJC/OEM facility will be open during defined business hours. Similar to the Police a secure reception point will be established to control public access to the facility. Access control to secure areas within the facility, either from staff entry points to the facility or for public cleared for entry from the lobby will be managed by card-type authorization. Use of electronic access control systems allows for zones of varying security levels to be created throughout the facility and for users to granted or denied access to these areas with relative ease.

Other Planning Factors

Several functional elements that impact the square footage, site requirements, and site development were identified during this needs assessment process. Some of the key factors are listed below:

- Police Training – This process occurs at the Training Facility, so no specialized physical training rooms are planned at any of the facilities included in this study. Only classroom training spaces were considered.
- Detention – Since the County facility is so close, minimal holding and processing spaces were needed.
- Victims Services – The Police department currently partners with the local child advocacy group to assist young victims, and this working relationship is expected to continue. Therefore, no dedicated office space for this function is

needed, but a soft interview room can be used to meet with victims.

- Evidence Lab/Processing – Staff noted that the regional crime lab often cannot turn around evidence processing as quickly as desired, so space considerations were included to allow staff to perform more procedures in house in the future. This includes space for latent prints and AFIS.

Site Planning

Parking

The most significant impact on Site Planning is parking for all staff, city owned (secure) and public vehicles. The parking requirements are divided into Public, Staff, and City/Secure. A chart for the parking needs at each proposed facility is included in the analysis section for that facility. The department recently ended their take-home policy and do not anticipate bringing it back; this was taken into account when determining the parking needs.

5

Space Needs – General

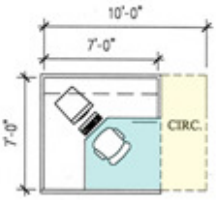
Introduction

Based upon the conclusions discussed in the Planning Section of this program, the requirements for each area of the Police Facility are summarized in the following narratives. The function, adjacencies, and accessibility of each element are detailed, including assumptions and unique conditions that were placed on some areas.

Explanation of Circulation Factors

The ***Circulation Area*** is the portion of the Gross (Total) Area, whether or not enclosed by partitions, which are required for physical access to some subdivisions of space.

Systems Office Furniture (Work Stations) Circulation:



WORK STATION
49 sq.ft. Actual
70 sq.ft. with Circ.
WS 2

Contrary to popular perception systems office furniture does not take up dramatically less space. What they do allow is flexibility of that space. A certain amount of area is added to these systems before the department circulation to allow for adequate circulation to each of the systems cubicles. Please see the drawings of the workstations for the area added to the actual size.

Gross Circulation:

This is a calculation of the circulation needed to travel to and within the department and the thickness of walls. It is a percentage of the Gross square footage (i.e. the subtotal and the circulation together). This number is calculated (using 25% as an example) by taking the subtotal and dividing it by (100-25) then multiplying by 25. This gives you a number that is 25 percent of the Gross square footage. [(Subtotal/75) x 25= gross circulation] This circulation number varies depending on the makeup of the department.

Gross Circulation Sample

(Subtotal/75) x 25 = gross

Exterior Wall/ Mechanical/Circulation Factor:

After each department is added together to form a component (i.e. Patrol, CID, Staff Support) then each component has a building envelope and mechanical factor added to it. This number covers the area needed for exterior walls and mechanical systems and circulation between components.

Explanation of Department Tables

The table shown below serves as a legend to understanding the tables shown in each department section to follow.

Police Needs Assessment

Division

Requirements Data Sheet	Current 2011	Future Space Needs				Projected 2021 Requirements			Projected Add'l 2031 Requirements		
Item Description	Staff	Space Code	Note Code	Unit Size	Unit Area	Staff	No.of Spcs	Total Area	Staff	No.of Spcs	Total Area
Divison											
Waiting (5)					20		5	100			
Info Kiosk				9x9	81		1	81			
Admin Assistant		WS4		7x8	80	1	1	80			-
Conference (4)				10x10	100		1	100			-
Captain	1	PO3			180	1	1	180			-
Lieutenant	1	PO1		10x12	120	1	1	120	1	1	120
Clerk		WS5		8x8	88	2	2	176	1	1	88
Technician	1	WS5		8x8	88	1	1	88	1	1	88
											-
Volunteer workstation		WS1		4x5	35		1	35			-
Work/Copy				10x12	120		1	120			-
Supply Room				9x10	90		1	90			-
Coffee/Coats				7x9	63		1	63			-
Net Subtotal	3					6		1,233	3		296
28% Gross Circulation								480			115
Total Gross Sq. Footage								1,713			411
Total Area	3.0					6.0		1,713	9.0		2,124

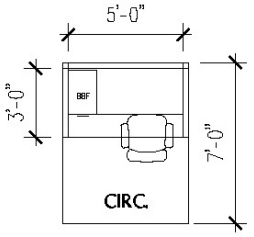
() Peak Users to be Accommodated

1. Description of space or personnel space.
2. Current staffing numbers.
3. Space code identifies spaces listed in space standards section.
4. Unit size describes physical size of space.
5. Unit area per space or personnel housed within space.
6. 10-year hallmark (2021) for staff projections.
7. Number of spaces required (i.e. One conference room is provided).
8. Total area equals unit area times number of spaces to develop total area.
9. Same as Year 2021 codes except additional staff and areas for 2031 population.
10. Reflects walls/circulation as described on previous page.

Space Standards

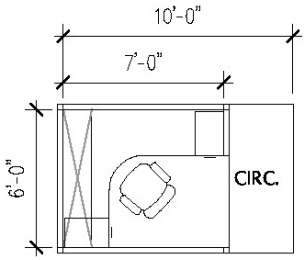
The space standards used for this program are based upon the furniture quantity and sizes necessary to meet the functional needs of the space. The following diagrams show the standards set for this project. The furniture layouts shown are for informational purposes only and may not reflect the final furniture elements or arrangements.

Workstations



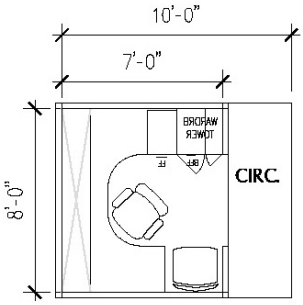
WORK STATION
20 sq.ft. Actual
35 sq.ft. with Circ.

WS 1



WORK STATION
42 sq.ft. Actual
60 sq.ft. with Circ.

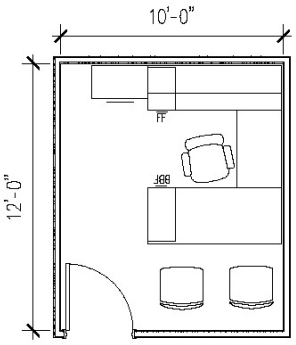
WS 2



WORK STATION
56 sq.ft. Actual
80 sq.ft. with Circ.

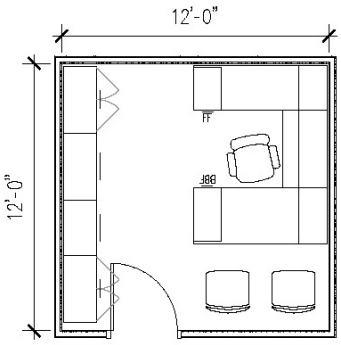
WS 4

Private Offices



PRIVATE OFFICE
120 sq.ft.

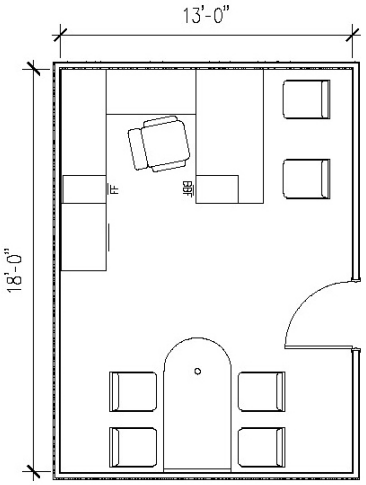
PO 2



PRIVATE OFFICE
144 sq.ft.

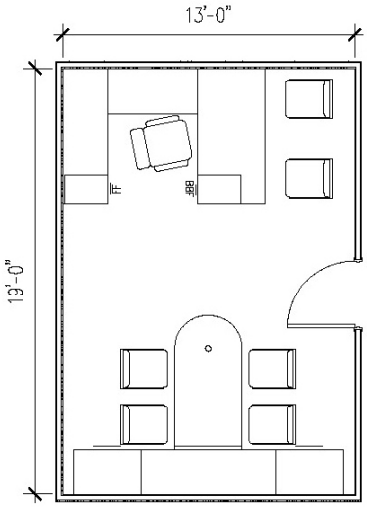
PO 3

Private Offices



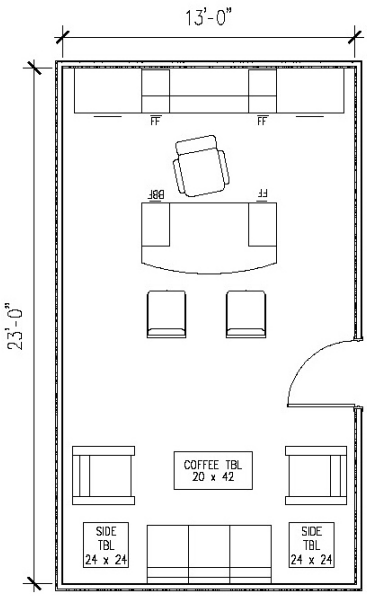
PRIVATE OFFICE
234 sq.ft.

PO 4



PRIVATE OFFICE
247 sq.ft.

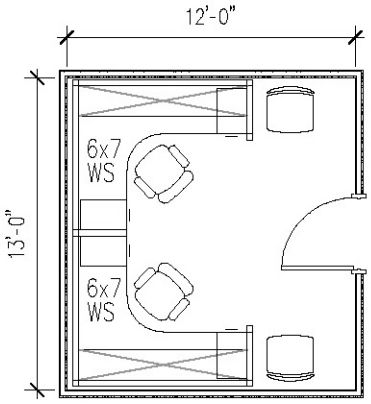
PO 5



PRIVATE OFFICE
299 sq.ft.

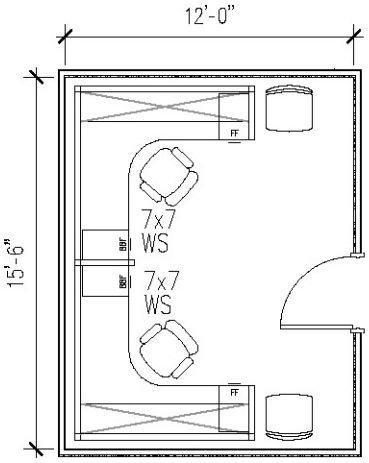
PO 6

Shared Offices



SHARED OFFICE
156 sq.ft.

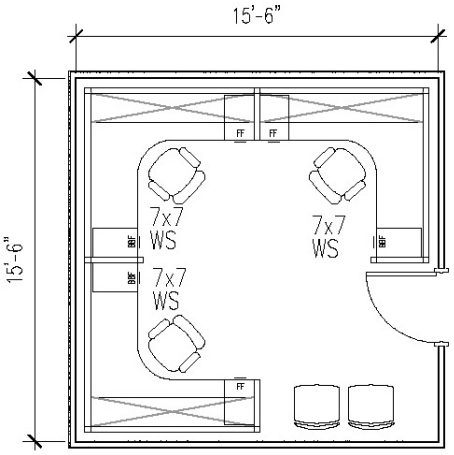
SO 1



SHARED OFFICE
186 sq.ft.

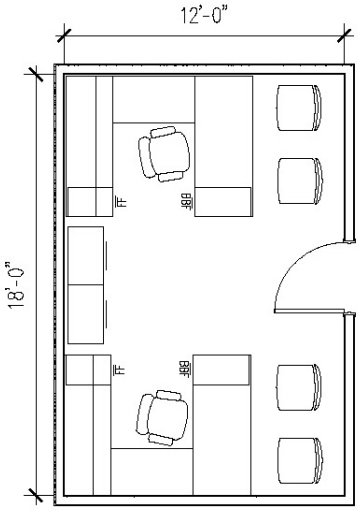
SO 1a

Shared Offices



SHARED OFFICE
240 sq.ft.

SO 3



SHARED OFFICE
216 sq.ft.

SO 4

Section D

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Public Safety Joint Communications Office of Emergency Management

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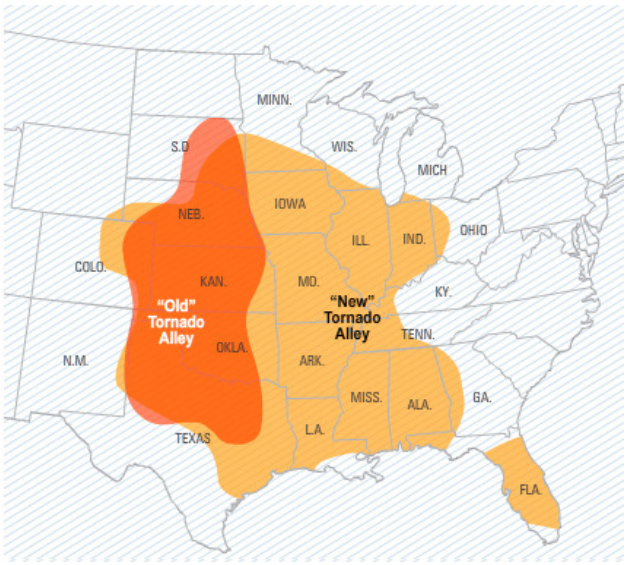
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PSJC/OEM Synopsis

Synopsis of PSJC/OEM

The new Public Safety Joint Communications/Office of Emergency Management is the final component in all of the options presented in this study. Currently, PSJC resides on a portion of the second floor of the existing downtown police headquarters. The current Emergency Operations Center is housed in the old WPA-era Armory building located just two blocks north of the PSJC location. At both locations, current conditions are woefully inadequate considering the critical nature of these functions to public safety.

The conclusion of this study is that PSJC/OEM should be provided with a new, standalone facility that can be located as needed, either on its own site or sited near one of the new proposed Police precinct facilities. The reasons for a new facility are several. First, there is the need to provide these critical services with a facility that provides each the ability to meet the current standards governing those functions. Secondly, the efficiencies gained by unifying these functions; efficiencies of staff, space and support. Another reason is survivability. The City of Columbia and greater Boone County fall within what is being termed the "New Tornado Alley". Constructing a facility that withstand a tornado, and still continue to function requires many special features. Including these features in a combined Police/PSJC facility would unnecessarily elevate the cost of that facility.



As previously noted, this new PSJC/OEM facility is part of every option presented. Under each option and each track under each option the new PSJC/OEM is part of the first set of facilities to be constructed. This is needed to be able to move the PSJC staff, and the Police, out of the existing Downtown Headquarters building to make way for it to either be renovated, or demolished and replaced. Following the same assumption of a June 2015 design start for the "build as needed" track, the new PSJC/OEM facility is projected to be complete by January 2018 at a cost of $16,048,656. If the "least construction cost" track is pursued, design starts in January 2013; construction finishes in July 2016 at a cost of $13,023,335.

PSJC/OEM

Public Safety Joint Communications
Office of Emergency Management

This area is primarily the administrative function for the facility. The ASA in the open office area of the administrative area will be responsible to respond to the reception window to the public lobby. The window itself is to be bullet-resistant with an intercom for communication. The window is not intended to be a permanently manned station and is therefore planned to provide a stand-up interaction. A small room next to this window will allow this same ASA to receive mail and small deliveries. The main Lobby will be a secured gathering space for the facility with seating for 6 people that will require going through an electronic access control point or being allowed in via remote release by someone within the facility. An intercom within the entry vestibule will allow visitors to make contact to multiple points within the facility to request access to the lobby. The lobby will also provide access to the Emergency Operations Center's Media Room, which will also serve as the Regional Staff Conference Room (these will be discussed under the EOC portion of the study). The lobby will contain toilets and water fountains to support this space.

In the administrative area activities related to the day to day operation of the facility will occur. This area is generally in operation during normal business hours. The Administrative Assistants, ASA and volunteers will have workstations arranged in an open office environment. This area should be located centrally to the reception window to the lobby, to the central files area, and to the offices of the management staff to which these people are providing support.

The Director's private office is a large formal office with one side outfitted with a casual seating area for informal meetings. For more structured meetings, an 8-person conference will be provided. This conference room will be equipped with A/V capabilities to allow it to also act as a training area and to be utilized as a breakout room for the EOC functions. The Assistant Director's private office will be similar to the directors but have a smaller in-office conference area. The Executive Administrative Assistant supporting both of these positions will have a private office close by.

Private offices will also be provided various managers. Shared offices will be utilized for the Public Information and Communications Officers.

Public Safety Joint Communications
Office of Emergency Management (continued)

A central files area is to be provided which will utilize standard lateral filing cabinets. Within this area a 5' desk work area is to be provided for persons working on filing or projects.

Also central to the administrative are a copy/work/coats area that should include coffee maker, copier, printer, fax shredder and storage for day to day supplies. This area will be shared with the EOC. Also shared with the EOC is a kithcen/greak area for 12 persons. A supply storage room should also be located in this area.

A final space to be shared with the EOC consists of two combination private toilet/shower rooms.

Communications Area

The heart of the public safety joint communications facility is the communications area. This area is in operation 24 hours a day, functioning as the Public Service Answering Point (PSAP) not only for the City of Columbia, but also for Boone County. The PSJC dispatches Police, Fire and Emergency Medical Services (EMS) for a number of agencies:

- Ashland Police Department
- Boone County Fire Protection District
- Boone County Sheriff's Department
- Boone Hospital Center Ambulance
- Capital Region Ambulance Service
- Centralia Fire Department
- Centralia Police Department
- Columbia Fire Department
- Columbia Police Department
- Hallsville Police Department
- Missouri University Police Department
- Southern Boone County Fire Protection District
- Sturgeon Police Department
- University Hospital Ambulance Service

Communications Area (continued)

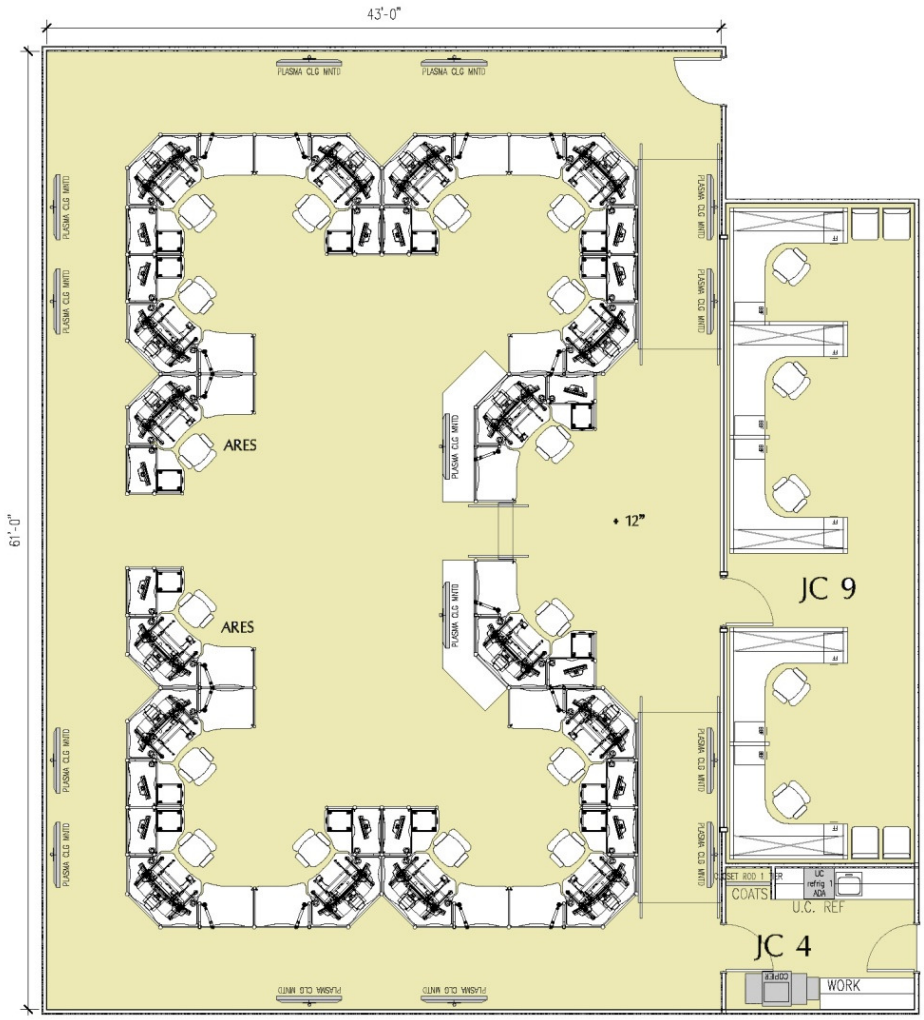
The number of incoming calls received in 2011, the last full year for which data is available, was 265,826. Additionally, some 911 calls must be connected to other agencies, such as Poison Control, while the PSJC staff remains online; some calls must be made out from the PSJC; and some calls to other agencies, such as Missouri State Highway Patrol, involve PSJC personnel for a period of time. The sum of all of these outgoing call types for 2011 was 59,045. Thus, total calls for PSJC in 2011 were 324,871. These numbers do not include the number of radio/dispatch interactions with emergency response agencies in the list above. (An appendix reflecting the 2011 call data cited, as well as additional information is provided at the end of this section of the study).

In addition, the PSJC acts as the communication arm of the Emergency Operations Center whenever the Center is activated in the event of a natural disaster or a man-made emergency. As additional layers of responsibility, PSJC activates the early warning system; retrieves data from the National Crime Information Center (NCIC) and the Missouri Uniform Law Enforcement System (MULES) for the police departments they serve; and inputs information into the various records management systems for several of the served agencies, the Boone County Jail, and the City and County Prosecutors. To do all of these functions, PSJC currently has trained communications staff, including supervisors, of 29 personnel. For a 24 hour, seven day a week facility, this is substantially below the staffing levels recommended by groups such as the Association of Public-Safety Communications Officials (APCO). The current space in which the PSJC resides has only enough space for 8 fully functioning consoles (console can act as call taker or full dispatch). Given the increase in service population discussed in the PSJC Planning portion of Section 4 of this study, and given the challenges of increasing staffing for this function, the study team worked with the PSJC staff to set reasonable and realistic goals for the number of consoles and staff for the new facility. The final result is a goal of 14 full consoles and a communications staff of 70.

Just as the communications area is the heart of the PSJC, the heart of communications is the Console area. As noted above, 14 full consoles are to be provided. These should be fully ergonomic consoles with adjustable height to allow the Emergency Telecommunicator using that console to move from seated operation to standing at the touch of a button. In addition to the 14 full consoles, two additional consoles are to be provided for use by Amateur Radio Emergency Service (ARES) personnel during EOC activation. This also provides some built-in future flexibility.

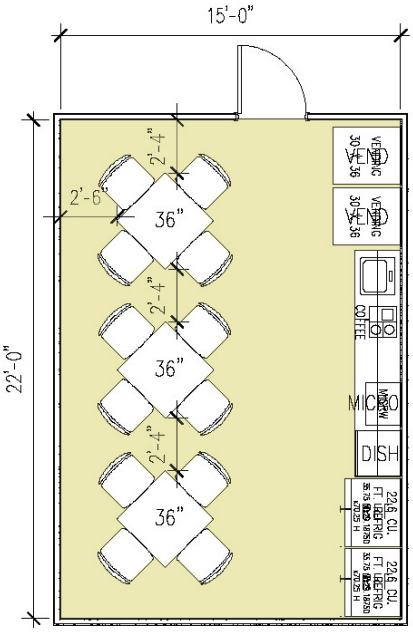
Communications Area (continued)

Two of the consoles are to elevated and function as supervisor consoles. These should be located near the supervisors' office and in such a way as to provide maximum views of the communications floor. (See sketch CS-3c) The wall separating the Console Area from the Supervisors Office should be glass to allow the supervisors some degree of visibility into the console area.



CS 3c
CONSOLES (14), 2 Positions Elevated 12", 2 ARES Consoles
2,623 sq.ft.

Other support functions for the communications area would include a work/copy area containing copier, printer, fax and shredder. This should be directly off of the communication area for ease of use, but separated so that noise infiltration to the communications floor is minimized. A locker room should be included, providing a 12" wide, half height locker with the door slotted to allow mail delivery to each of the Emergency Telecommunicators. Additionally, a break area is required. Within this area should be seating for 12 and a preparation area that includes 2 microwaves, 2 vending machines, 2 refrigerators and a dishwasher. (See sketch JC-2).

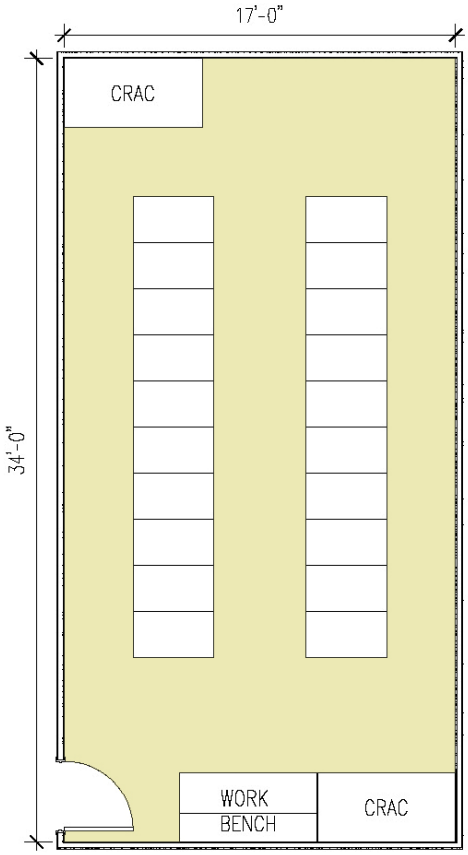


BREAK AREA
330 sq.ft.
JC 2

Communications Area (continued)

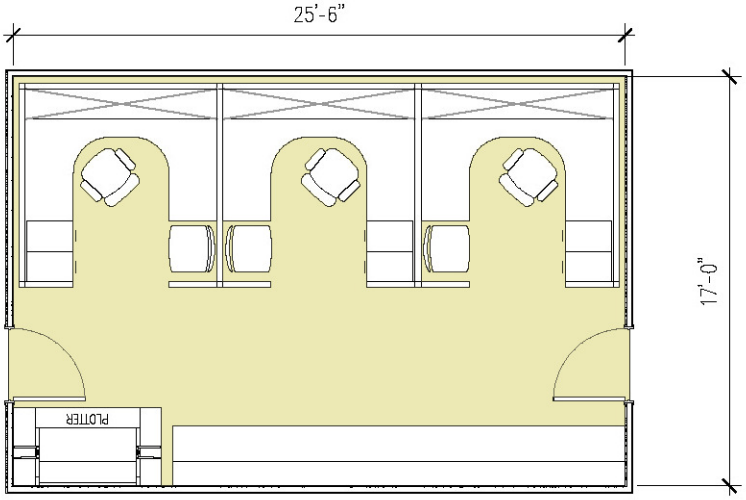
A quiet room that provides sound isolation from the communications floor is also essential. The room should contain a pair of recliners or small couches. Also, toilets dedicated to the communications staff should be part of this zone.

The key elements supporting this zone are the Communications Computer Room and the Radio Room. The Communications Computer Room room will house all of the servers and other computer equipment that support the Consoles. (See sketch JC-3) The room should have a work bench for providing routine maintenance and this area will have redundant Computer Room Air Conditioning (CRAC) units for cooling the room in case of a larger mechanical systems failure. Each rack within the room should be provided with a tack mounted UPS. This provides uninterrupted power to the equipment until the emergency back-up power systems are operational. This room is usually protected by a pre-action sprinkler system tied to a Very Early Smoke Detection System (VESDA), which is a different system than that which will be provided throughout the rest of the facility. The radio room will house the equipment needed to enable the facility to broadcast radio for dispatching purposes. It will also house the fiber links that allow fiber optic back up to remote towers in the event of radio equipment failure or tower damage due to an event.



COMPUTER ROOM
578 sq.ft.
JC 3

The final support element to the communications area is the shared office for the system support analysts. This should have desk and work space for three analysts and provide sufficient room for a full size plotter. (See sketch JC-6). This space should be located between the communications area and the EOC.



SYSTEM SUPPORT ANALYSTS
434 sq.ft.
JC 6

Building Support

Building Support includes areas that are general to the entire building. This area should have direct exterior access or be close to an exit for ease of maintenance. These areas include the central electrical room, sprinkler and central mechanical. At this facility, due to the high level of survivability desired, the emergency generator and the electrical switchgear are placed inside. Also, space is provided for a supply of potable water for use in emergency activations where the local water supply may have been compromised or the infrastructure to bring water to the site in some way damaged. This supply would not be for drinking, as space is provided in another area for a supply of bottled water for this purpose.

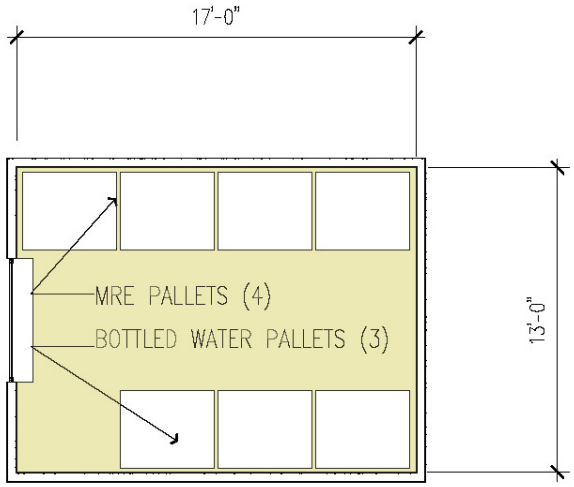
It is suggested that the City or County assign a Building Engineer to this facility who will understand the systems installed in this facility. The Building Control Room will be this person's office and have the computer controls for the building systems and security system.

The Central Janitor will serve as a storage/work area for the cleaning staff. The general storage will serve as bulk storage for the entire facility. Dedicated space for the Phone Demark and the Central Data Room should be included. The Maintenance Storage is intended for storage of all of the stock items the contractor will be required to provide at the end of construction.

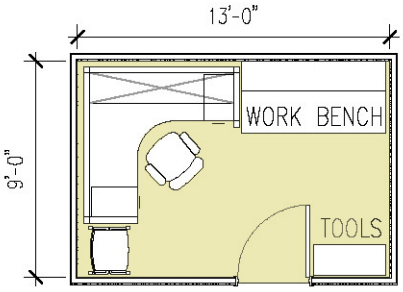
Other support spaces that would be distributed throughout the facility are elevator equipment rooms, janitor closets, electrical closets, and IT/data closets.

PSJC/OEM Support Building – Conditioned

The support buildings are intended to provide additional storage, garage and work space in a more utilitarian environment than that found within the main facility. Some of these areas will need full climate control. A pair of offices for Tech Staff containing a desk, workbench and tool storage (see sketch JC-5) would be included in this category, as would a toilet. Also in the conditioned area would be the bulk storage, which is intended to hold the bottled water and emergency rations to feed everyone within the facility for at least 72 hours. The size of this area is based on storing 4 pallets of MRE's and 3 pallets of bottled water, which is calculated to be sufficient for three shifts of 80 people for three days. (See sketch JC-8)



BULK
221 sq.ft.
JC 8



TECH STAFF
117 sq.ft.
JC 5

PSJC/OEM Support Building – Non A/C

This portion of the support building is truly a garage function. The Office of Emergency Management has several trailer mounted emergency generators for temporary distribution in an emergency. These are currently stored outside, in an unsecured lot next to the Armory building. Providing a sheltered location to store these and other OEM trailers is very desirable as it extends the useful life of the equipment and protects these important assets from other damage in an event. Four garage bays are dedicated to the storage of these sorts of assets. A fifth bay is provided to act as a receiving area and should be provided with a small fork lift for unloading large deliveries.

Requirements Data Sheet	Current 2011		Future Space Needs				Projected 2021 Requirements			Projected 2031 Additional Requirements		
Item Description	Staff	Area	Space Code	Note Code	Unit Size	Unit Area	Staff	No.of Spcs	Total Area	Staff	No.of Spcs	Total Area
PSJC/Emer. Management												
Vestibule					10x10	100		1	100			-
Lobby (6)					10x14	140		1	140			-
Public Toilets					8x8	64		3	192			
water fountains					5x5	25		1	25			
Reception Counter/Window												
ASA			WS4		7x8	80	*1*	1	80			
Deliveries Receiving					7x7	49		1	49			
Pub.Info./Comm. Officer	1		SO3		15.5x15.5	240	*2*	1	240			
PSJC/Emer.Man.Director	1		PO6		13x23	299		1	299			
Executive Admin. Assist.	1		PO3		12x12	144		1	144			
Assistant Director			PO5		13x19	247	*1*	1	247			
Admin. Assistant	2		WS4		7x8	80		2	160			
Operations Manager	1		PO4		13x18	234		1	234	*1*	1	234
Admin. Services Manager	1		PO4		13x18	234		1	234			
Training Manager			PO2		10'x12'	120	1	1	120			
Conference/Training (8)			CN-B		12x18	216		1	216			
A/V Closet					5x5	25		1	25			
Part-Time Personnel	1		WS4		7x8	80		1	80			
Central Files					15x15	225		1	225			
Copy/Work/Coats					9x17	153		1	153			
Supply Storage					7x11	77		1	77			
Toilet/Showers					8x11	88		2	176			
Net Subtotal	8						5		3,216	1		234
24% Gross Circulation									1,016			74
Total Gross Sq. Footage									4,232	1		308
Communications Area												
Shift Supervisors	4		JC-9		12x42	504	1	1	504			-
Consoles (14)			CS-3c		43x61	2,623		1	2,623			
Emrg. Telecommunicator	25						22		-	18		
ARES Room (2 stations)					10x12	120		1	120			
Copy/Work					9x12	108		1	108			
Lockers (65) (12"x36"x22"d)					9x16	144		1	144			-
Break Area (12)			JC-2		15x22	330		1	330			-
Storage					5x5	25		1	25			
Quiet Room					10x10	100		1	100			
Toilet					8x8	64		2	128			-
Comm. Computer Room (20)			JC-3		17x34	578		1	578			-
Radio Room					10x20	200		1	200			
System Support Analyst	2		JC-6		17X25.5	434	1	1	434			
Net Subtotal	31						24		5,294	18		-
15% Gross Circulation									934			-
Total Gross Sq. Footage									6,228			-
Building Support												
Sprinkler					6x7	42		1	42			
Central Electrical					9x16	144		1	144			
Building Control/Engineer					9x12	108		1	108			
Mechanical					14x14	196		1	196			
Maintenance Storage					10x12	120		1	120			
Janitor Closet					9x10	90		1	90			
Generator Room					24x24	576		1	576			
Switchgear					12x12	144		1	144			
Water Storage					6x20	120		1	120			
Elevator Equipment Room					10x12	120		2	240			
Net Subtotal									1,780			-
17% Gross Circulation									365			-
Total Gross Sq. Footage									2,145			-
Support Buildings												
AC												
Tech Staff (OEM)equip			JC-5		9x13	117	*1*	1	117			
Tech Staff (PSJC)radio			JC-5		9x13	117	1	1	117			
Toilet					7x8	56		1	56			
Bulk Storage			JC-8		13X17	221		1	221			
Net Subtotal									511			
15% Gross Circulation									90			
Total Gross Sq. Footage									601			
Non AC												
Garage (4 bays)					16x24	384		4	1,536			
Receiving Garage (1 bay)					16x24	384		1	384			
Net Subtotal									1,920			-
15% Gross Circulation									339			-
Total Gross Sq. Footage									2,259			-

() Peak Users to be Accommodated

Positions shown in *RED* indicate OEM personnel in future

Emergency Operations Center

Emergency Operations Center

One function of the EOC is to disseminate information to the public. Media interaction is critical to this function. Off of the lobby described in the PSJC/OEM portion of this study will be located a Media Room. This room will provide space for the EOC staff to brief the major media outlets. 16 major outlets have been identified and space at a u-shaped conference set-up is provided for each of these. The u-shape of the table configuration focuses attention to an A/V headwall and a table and lectern set-up for the EOC staff conducting the briefing. Seating around the outside walls of the space increases the total capacity of the room to 40. (See sketch JC-10). In addition, this room can be reconfigured for use by the PSJC/OEM for use as a 30 person conference room for the regional staff meetings.

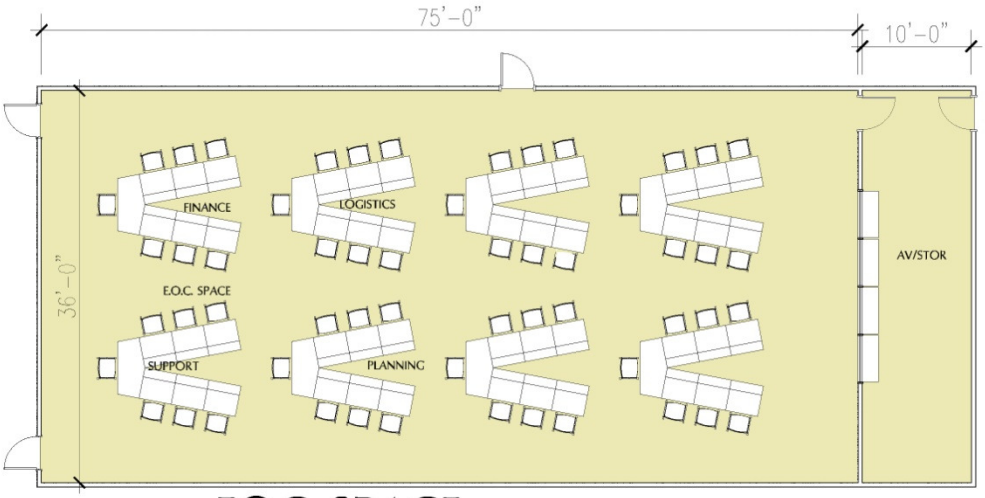


MEDIA ROOM - 40 Audience (16 @ tables)
1,088 sq.ft.
JC 10

However, the primary function of an Emergency Operations Center is to provide centralized command and control for the region in the event of a natural disaster or man-made event. The primary EOC space is designed to be provided with eight cluster groups all focused on an A/V image wall. The wall will be capable of displaying one large image or multiple smaller images. Each cluster group will seat seven people, for a total of 56 people, each with their own monitor, phone and three foot wide work area. Supplemental A/V monitors can be placed on the side walls.

Emergency Operations Center (continued)

This configuration is intended to be fixed. (See sketch EOC-1). Smaller scale events that do not require a full activation can utilize only the number of cluster groups needed.



EOC-1 EOC SPACE
2700 sq.ft.

In close proximity to the main EOC floor will be a series of flexible office spaces. These are intended to serve as temporary space for the use of outside agencies, such as the Department of Homeland Security (DHS) or a team from the National Incident Management System (NIMS), during a full activation of the Emergency Operation Center.

Also in close proximity would be an office area that can be used by intelligence personnel. This space would offer these personnel a centralized location to gather, analyze and prepare for dissemination intelligence on criminal or homeland security threats. The inclusion of this space provides the opportunity for this facility to function as a "fusion center" for the county, or possibly the larger region.

A full activation under emergency conditions may well mean that all of the assigned staff for the facility is forced to remain on-site for an extended period of time. The stores of food and water are established for a level that allows full staff usage for a period of 72 hours without any outside assistance. Other support functions needed to maintain a full staff for that period of time would include a kitchen and break room that could seat 12. This space is shared with the PSJC/OEM administrative staff that would use it under normal conditions and then control of the space would shift to the EOC in the event of activation. The kitchen for this area should be set up such that preparation and serving can occur separately. Inclusion of a large ice-maker in this kitchen is essential. Feeding the staff is a critical component of keeping an EOC in operation.

Emergency Operations Center (continued)

Also critical to the staff's ability to function is the opportunity for rest, sleep and exercise. To these ends, provision of a communal seating area for awake down time, a series of four bunk rooms with double bunks to allow for more restful sleep periods and an exercise area is made in this program. A number of the essential personnel for activation are already based in the building and have private offices. It is felt that these people will be more comfortable in those offices when attempting to sleep, which allows for fewer bunk rooms. An area to deal with a staff member getting sick or injured is an important element, thus an infirmary space is provided. The nature of this space would be similar to a doctor's exam room. A large bank of toilets will be provided to support the EOC. Additionally, a pair of toilet/shower rooms is intended to be shared with the PSJC/OEM administrative area in the same manner as the break room mentioned previously. Clean clothes are also helpful in maintaining health and morale of the staff. A small laundry area is provided also.

City of Columbia — **Police/Joint Communications Needs Assessment**

Emergency Operations Center

Requirements Data Sheet	Current 2011		Future Space Needs				Projected 2021 Requirements			Projected 2031 Additional Requirements		
Item Description	Staff	Area	Space Code	Note Code	Unit Size	Unit Area	Staff	No.of Spcs	Total Area	Staff	No.of Spcs	Total Area
Emergency Operations												
Media Room/Staff Conference			JC-10		32x34	1,088		1	1,088			
A/V Closet					5x5	25		1	25			
Sound Vestibule/Coats					8x10	80		1	80			
EOC Space (40)			EOC-1		36x75	2,700		1	2,700			
Control Room					15x15	225		1	225			
EOC Storage/A-V					10x36	360		1	360			
Flex Office Space					10x12	120		4	480			
Intelligence					16x26	416		1	416			
Kitchen/Breakroom (12)					12x22	264		1	264			
Kitchen					9x22	198		1	198			
Exercise					15x16	240		1	240			
Bunk Room					7x9	63		4	252			
Laundry					7x8	56		1	56			
Infirmary					9x11	99		1	99			
Toilet					8x8	64		1	64			
Communal Seating					10x10	100		1	100			
Toilets					13x19	247		2	494			
Janitor					5x7	35		1	35			
Net Subtotal									7,176			
20% Gross Circulation									1,794			
Total Gross Sq. Footage									8,970			
Total Area									8,970			8,970

Parking

PSJC/OEM Parking Needs

As at the various Police Facilities explored in this study, parking is often a driving factor of site size and selection. However, for the PSJC/OEM facility and additional requirement is also critical: security stand-off perimeters. This establishes how far away from the critical portions of the facility any vehicle is kept without going through some form of access control. A number of guidelines and standards for his type of perimeter have been established with varying levels of security afforded and varying levels of acceptance by the public safety community. In conjunction with the PSJC/OEM staff, this study has set that minimum stand-off distance at 50 feet.

As seen on the following parking needs chart, there is a total parking need of 94 at peak associated with a full activation of the EOC. The chart shows that that outside agencies and media make up the entire public count when the EOC is active. The staff and secure parking would be within a secure perimeter. There is no reduction to this count for vacation or illness as at the Police facilities previously discussed. This reflects the anticipated overlap for emergency telecommunicators during activation.

Columbia PSJC - 2031

Shift Times — PSJC/OEM

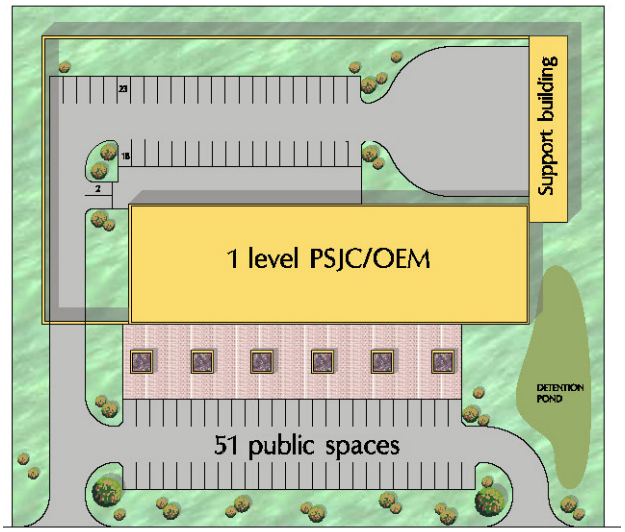
DEPARTMENT	# Staff	12 am		2 am		4 am		6 am		8 am		10 am		12 pm		2 pm		4 pm		6 pm		8 pm		10 pm	
PUBLIC PARKING																									
PSJC Visitors										30	30	30	30	30	30	30	30	30	30						
EOC Operations - Media		16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
EOC Operations - Outside Agencies		35	35	35	35	35	35	35	35	5	5	5	5	5	5	5	5	5	5	35	35	35	35	35	35
Total Public Cars		51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
STAFF CARS																									
PSJC / OEM																									
DIrector	1									1	1	1	1	1	1	1	1	1							
Asst. Director (OEM)	1									1	1	1	1	1	1	1	1	1							
Exec.. Assistant	1									1	1	1	1	1	1	1	1	1							
PSJC Managers	4									4	4	4	4	4	4	4	4	4							
Admin. Assistant	2									2	2	2	2	2	2	2	2	2							
PSJC Supervisor	5	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1
Public Information Officer	3									3	3	3	3	3	3	3	3	3							
ASA	1									1	1	1	1	1	1	1	1	1							
Part-Time	1									1	1	1	1	1	1	1	1	1							
Vendor Technicians	2									2	2	2	2	2	2	2	2	2							
Emergency Telecommunicators	65	12	12	12	12	12	12	18	18	12	12	12	12	12	12	12	12	12	12	18	18	12	12	12	12
System Support Analyst	3									3	3	3	3	3	3	3	3	3							
Tech Staff	2									2	2	2	2	2	2	2	2	2							
Total Staff Cars	91	13	13	13	13	13	13	19	20	35	34	34	34	34	34	34	34	35	14	19	19	13	13	13	13

AGENCY CARS/SECURE																									
Miscellaneous PSJC/OEM																									
Mobile Command	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
FEMA Trailer	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
SUV	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Van	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Agency Cars	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Budget

Budget for PSJC/OEM Facility

This section contains the budget for the Public Safety Joint Communications/Office of Emergency Management facility. This facility is always the same under all of the options explored in this study.



This budget is based upon a number of premises already enumerated earlier in this study. However, some of the premises have direct bearing on the cost of this facility and, therefore, bear repeating at this point.

This facility is intended to serve as the County Emergency Operations Center (EOC), and as such, must be able to first survive most of the emergencies that may lead to its activation. The primary concern for this area is tornadic activity, and the direction for this facility was to design for survival of an EF-5. This means wind speeds in excess of 200 mph and impacts from debris at over 150 mph. Therefore, the building structure, windows, mechanical units, power supply, etc., must be designed to withstand immense pressures and impacts. The inclusion of critical infrastructure within the building rather than on-site, as would more typically be the case, must be considered. Provision of high impact glazing and protective screens at windows and around exterior mechanical equipment must be factored into the analysis of cost. Also, the ability to have special filters on the HVAC system to protect the staff inside from accidental chemical spills or chemical/biological attack is another cost factor that must be included.

Other sources of natural disaster will not have significant cost impact. Boone County is just out of the New Madrid earthquake zone. Building codes will automatically require this facility's design to provide an appropriate level of protection from this particular threat. Additionally, the threat of flooding can be fully eliminated through site selection. If a site were to be selected for this facility that is not fully out of the 500 year flood zone as defined by the US Army Corps of Engineers, steps would need to be taken to mitigate this threat. Those impacts are not reflected in this budget.

City of Columbia
New Building
Public Safety Joint Communications
Project Budget
May 7, 2012

Testing Services		
Building Abatement	0	
Environmental Phase 1	8,000	Note B
Subsurface Soils	10,000	
Construction Materials	78,551	Note BB
Total	**96,551**	
Construction		
Site Demolition	0	Note P
Joint Communications Building	7,019,680	Note C
Support Buildings	440,700	Note W
Support Buildings with AC	135,680	Note V
I.T. Backbone/Cabling	100,968	Note D
I.T. Video	96,160	Note E
A/V Equipment	380,000	
Site Development/Parking	537,600	Note H
Emergency Generator/Fuel Tank	300,000	
Landscape/Flatwork/Lighting	150,000	
Site Fence (Secure Lots)	169,500	Note K
On-Site Water Retention	90,000	
Existing Utility Relocation	0	Note P
On-Site Development Utilities	0	Note P
Off-Site Utility Development	0	Note P
LEED Enhancements (Silver)	188,406	Note G
Contingency	864,782	Note L
Total	**10,473,476**	Note CC
FF&E		
Furniture	432,720	Note O
Exercise Equipment	0	Note F
Equipment/Appliances	40,000	
Total	**472,720**	
City Budgets		
Art Budget	104,735	Note N
Electrical/Service Fees	0	Note X
Gas/Cable Service Fees	0	Note P
Telephone	36,060	Note Y
Communications Relocation	70,000	Note Z
City Computer/Network Equipment	51,000	Note Z
Fiber to Site	()	Note P
Moving Costs	20,000	
Communication Tower	250,000	
Site Survey/Platting	8,000	
Owner Contingency	104,735	Note Q
Total	**644,530**	
Professional Services		
Site Submittal Process	12,000	
A/E Services	837,878	Note R
Commissioning	48,080	Note AA
LEED (Silver) Services	62,000	
Civil Engineering (On-Site)	60,000	
Civil Existing Utility Relocation	0	Note P
Civil Engineering (Off-Site Utilities)	0	Note P
ADA Consulting	6,000	
Landscape Design	20,000	
Cost Estimating	18,000	
AV/Acoustical Consulting	74,000	
FF & E/Interiors	68,000	
Technology/Security Systems Consulting	60,100	Note S
As Built/Contractor CAD Documents	12,000	
Reimbursable	58,000	
Total	**1,336,058**	
Sub-Total	**13,023,335**	Note M
Escalation	**3,025,321**	Note U
Land Cost	**0**	Note T
Total Project Cost	**16,048,656**	Note A

Budget Notes

Note A: Project Schedule
6/2015 - Design start
6/2016 - Bid
8/2016 - Construction start
11/2017 - Substantial completion
1/2018 - Occupancy

Note B: Due Diligence
Note C: 24,040 s.f. @ $292/s.f.
Note D: 24,040 s.f. @ $4.20/s.f.
Note E: 24,040 s.f. @ $4.00/s.f.
Note F: Equipment to be supplied by others
Note G: 2% of construction cost
Note H: Site preparation/paving 64,000 sf. @ $8.40/s.f.
Note J: Not required
Note K: 565 l.f. @ $300/ft. masonry
Note L: 9% of construction cost
Note M: Base costs calculated to January 2013
Note N: 1% of construction budget
Note O: 24,040 s.f. @ $18/s.f.
Note P: Site unknown at this time
Note Q: 1% of construction budget
Note R: 8% of construction cost
Note S: 24,040 s.f. @ $2.50/s.f.
Note T: 3.14 acres required
Note U: Escalation assumptions:

1/2013 to 1/2014	6.00%
1/2014 to 1/2015	7.00%
1/2015 to 1/2016	6.00%
1/2016 to 7/2016	2.50%
Total	23.23%

Note V: Support buildings w/AC
640 s.f.@ $212/ft.
Note W: Support buildings no/AC

2,260 s.f. @ $195/s.f.
Note X: City water & light data
Note Y: Estimate: 24,040 s.f. @ $1.50/s.f.
Note Z: Estimate: Awaiting PSJC budget
Note AA: LEED Commissioning
24,040 s.f. @ $2.00/s.f.
Note BB: .75% of construction cost. Testing to include mock-ups to meet Item CC.
Note CC: Buiding designed to be operational up to 250 MPH winds & openings designed to withstand 15 lbs. 2x4 @ 100 MPH

Track Comparison of Schedule and Cost

The following charts show the difference in cost and schedule in the two tracks discussed for each option presented in the previous sections of the study. The base numbers in the chart are based on the "build as needed" track. The numbers and dates shown in the red bounded box represent the impact of going with the "least construction cost" track.

Option 1: This option consists of a renovated Downtown Headquarters facility, New Precinct 1 North facility, New Precinct 2 South facility, and the New PSJC/OEM facility.

Option	Location	Function: PSJC/OEM	HQ Admin.	Dove, Juvenile CID	Records	Property / Evidence Crime Scene	Traffic	SWAT	Standard Precinct - CID Patrol	Assumed Design Start Date	Project Cost	Occupy	Accelerated Design Start	Project Cost	Occupy
1	Freestanding	•								Jun-15	$15,962,395	Jan-18	Jan-13	$12,953,335	Jul-16
	North Precinct					•		•	•	Nov-15	$16,663,639	Jan-18	Jan-13	$13,199,967	Mar-16
	Downtown Headquarters (existing building)		•	•	•		•		•	Mar-17	$10,600,444	Oct-18	Jun-15	$9,254,700	Jan-17
	South Precinct								•	Jul-20	$15,005,289	Aug-22	Jan-13	$9,450,365	Mar-16
										Total	$58,231,767		Total	$44,858,367	

Option 2: This option consists of a renovated Downtown Precinct facility, New Headquarters North facility, New Precinct 2 South facility, and the New PSJC/OEM facility.

Option	Location	Function: PSJC/OEM	HQ Admin.	Dove, Juvenile CID	Records	Property / Evidence Crime Scene	Traffic	SWAT	Standard Precinct - CID Patrol	Assumed Design Start Date	Project Cost	Occupy	Accelerated Design Start	Project Cost	Occupy
2	Freestanding	•								Jun-15	$15,962,395	Jan-18	Jan-13	$12,953,335	Jul-16
	North Headquarters Precinct		•		•	•		•	•	Nov-15	$21,756,489	Mar-18	Jan-13	$17,234,227	Jul-16
	Downtown Precinct (existing building)			•			•		•	Mar-17	$8,396,206	Oct-18	Jun-15	$7,330,293	Jan-17
	South Precinct								•	Jul-20	$15,005,289	Aug-22	Jan-13	$9,450,365	Mar-16
										Total	$61,120,379		Total	$46,968,220	

Option 3: This option consists of a New Downtown Headquarters facility, New Precinct 1 North facility, New Precinct 2 South facility, and the New PSJC/OEM facility.

Option	Location	Function: PSJC/OEM	HQ Admin.	Dove, Juvenile CID	Records	Property / Evidence Crime Scene	Traffic	SWAT	Standard Precinct - CID Patrol	Assumed Design Start Date	Project Cost	Occupy	Accelerated Design Start	Project Cost	Occupy
3	Freestanding	•								Jun-15	$15,962,395	Jan-18	Jan-13	$12,953,335	Jul-16
	North Precinct							•	•	Nov-15	$13,069,741	Jan-18	Jan-13	$10,353,090	Mar-16
	Downtown Headquarters (new building)		•	•	•	•	•		•	Mar-17	$26,685,310	Apr-19	Jun-15	$23,297,565	Jan-17
	South Precinct								•	Jul-20	$15,005,289	Aug-22	Jan-13	$9,450,365	Mar-16
										Total	$70,722,735		Total	$56,054,355	

Information Appendix

Following are several graphs and charts providing information related to the PSJC/OEM:

- 2011 Call Data
- Current PSJC Work Flowchart
- Data and Systems Input/Output Flowchart

2011 PSJC Call Data

PSJC
Report run: 04-Jan-2012 13:15:23
Public Safety Joint Communications

2011 Incoming Call Types

Requested period:
From: 01-Jan-2011 00:00:00
Until: 31-Dec-2011 23:59:59

2011	Total Calls	Wireline	Wireless	TTY	Abandoned
911 Incoming	73860	19747 (26.7%)	54113 (73.3%)	58 (0.1%)	6989 (9.5%)
Adm Incoming	191966	---	---	---	---
Total	265826				

PSJC
Report run: 04-Jan-2012 12:28:14
Public Safety Joint Communications

2011 Monthly Call Counts and Average Times

Requested period:
From: 01-Jan-2011 00:00:00
Until: 31-Dec-2011 23:59:59

2011	Calls	Average Ringing (seconds)	Average Call Duration (seconds)	Average Hold Time (seconds)	Total Holds (count)
911 Incoming	73860	2 (73896)	108	60	1031
911 Conference	3132	---	49	---	---
911 Transfer	1	---	---	---	---
911 Tandem Transfer	0	---	---	---	---
Call Back In Service	1800	---	52	0	0
Adm Incoming	191966		65	45	22853
Adm Outgoing	53142	---	44	49	328
Adm Conference	970	---	34	---	---
Total	324871				24212

Call Count Definitions:

- 911 Incoming: Total of all 911 call received by PSJC
- 911 Conference: Total of all 911 calls connected to another agency while PSJC remains on the line through call duration (i.e., Poison Control, Crisis/Language Lines, etc.)
- 911 Transfer: Total of all 911 calls sent to another agency and disconnected by PSJC before caller disconnected (i.e., Centralia Police)
- Call Back in Service: Total instances PSJC operator activated 911 trunk to Call Back a previous 911 caller
- Administrative Incoming: Total of all NON 911 calls received by PSJC
- Administrative Outgoing: Total of all calls made by PSJC on regular, NON 911 phone lines
- Administrative Conference: Total of all NON 911 calls connected to another agency while PSJC remains on line through duration of call (i.e., MSHP, MUPD, Centralia)

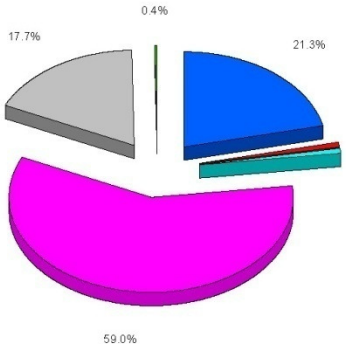
PSJC
Report run: 04-Jan-2012 12:28:14
Public Safety Joint Communications

2011 Monthly Call Counts and Average Times

Requested period:
From: 01-Jan-2011 00:00:00
Until: 31-Dec-2011 23:59:59

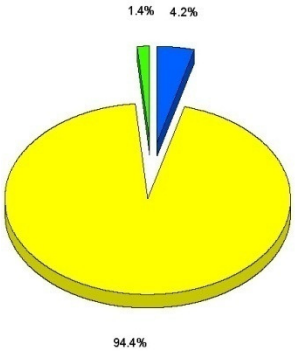
2011

Call Count



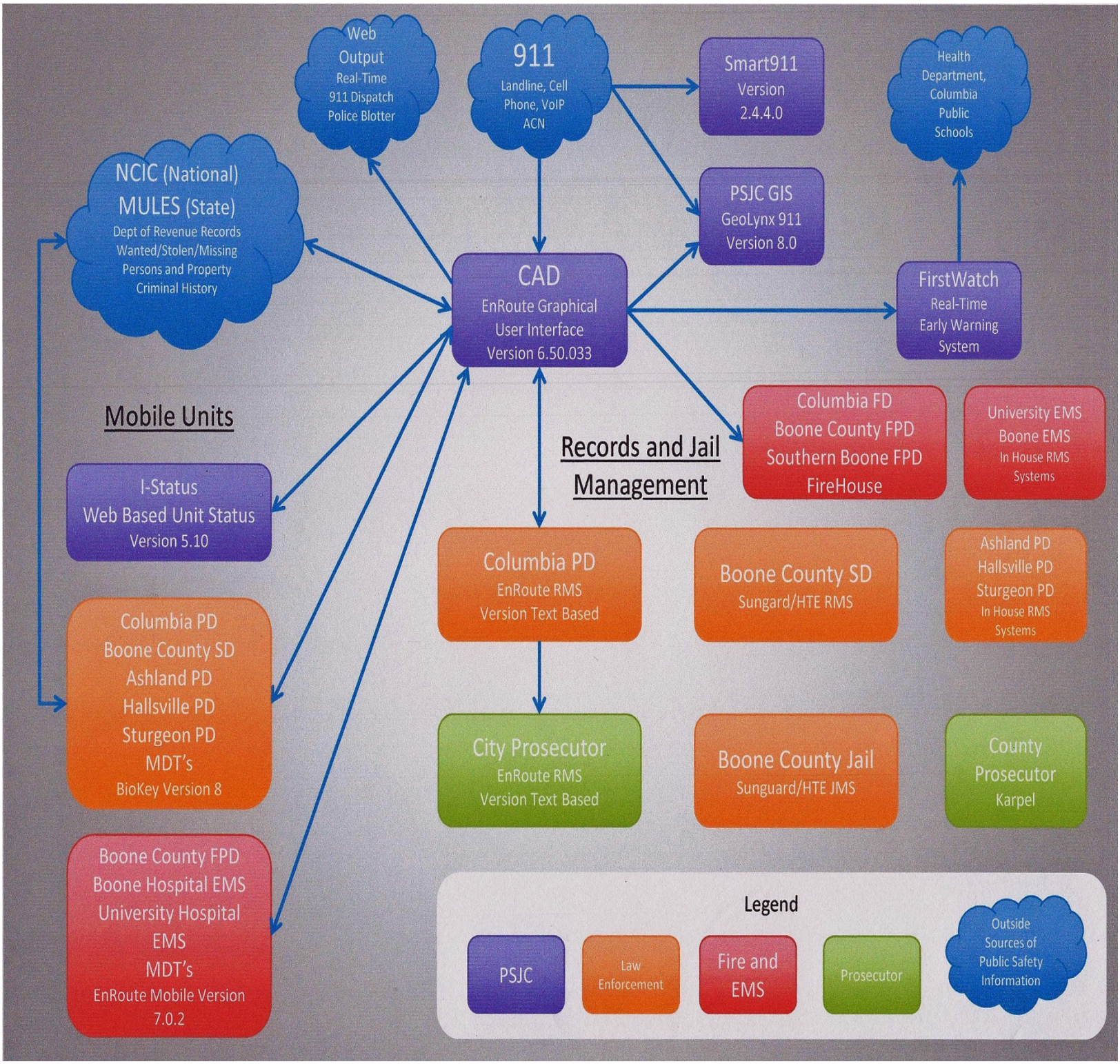
911 Incoming	73860
911 Conference	3132
911 Transfer	1
911 Tandem Transfer	0
CBIS	1800
Adm Incoming	191966
Adm Outgoing	53142
Adm Conference	970
Total	324871

Hold Count

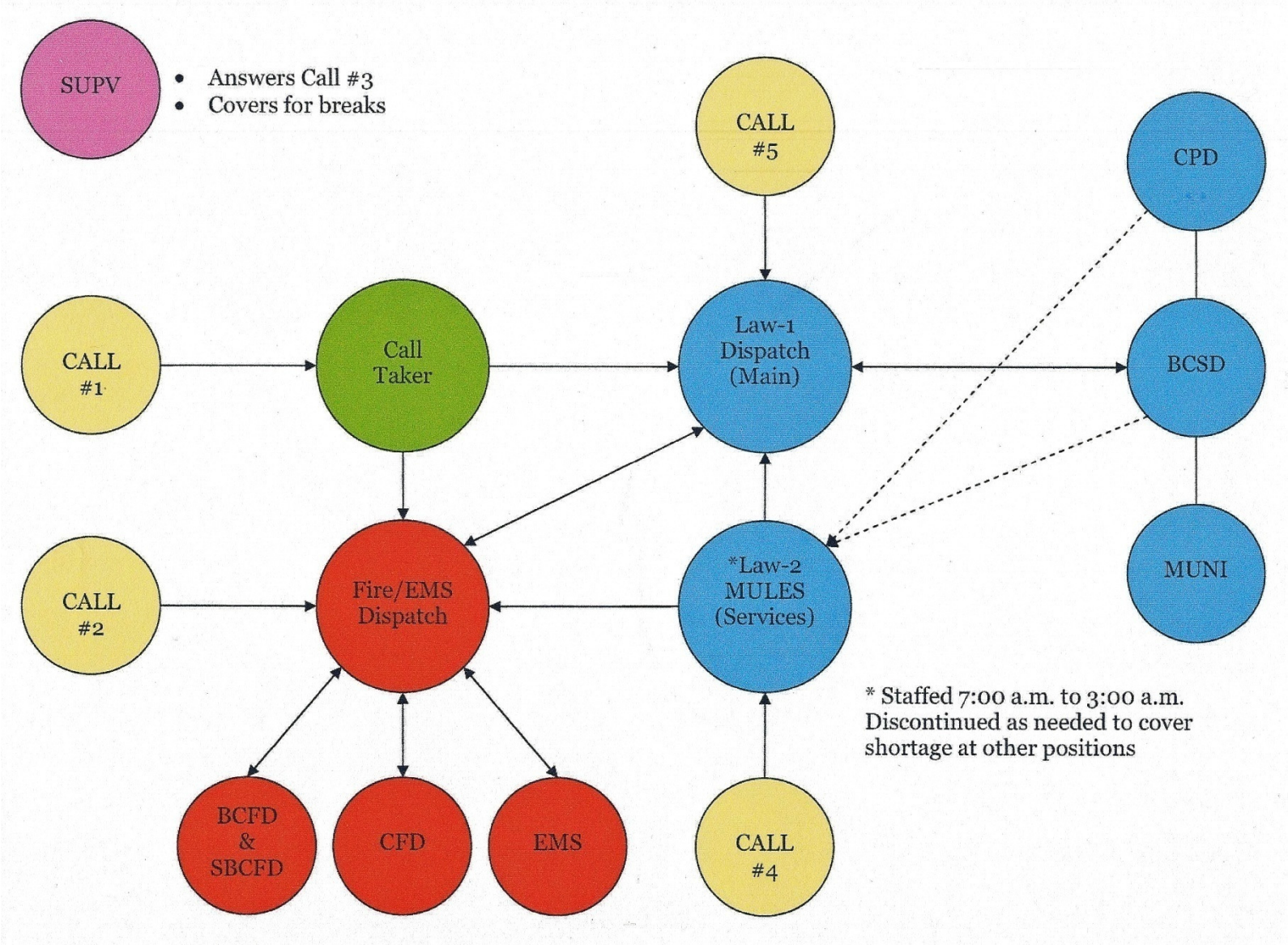


911 Incoming	1031
CBIS	0
Adm Incoming	22853
Adm Outgoing	328
Total	24212

Current PSJC Workflow



Data and Systems Input/Output Flowchart



Facility Locations Analysis

Methodology

Before beginning the process of site selection, some basic criteria needed to be established concerning the goals for the new facilities. Primary among these, for the Police facilities, was to increase the operating efficiency of the Police by limiting the time spent in transit from facility to service area. The location of the existing site remaining as the downtown Police location was a premise from early on, but the location of the two other Police facilities and the Public Safety Joint Communications/Office of Emergency Management facility are not tied down to specific locations as part of this study. Rather, areas of the City that contain open properties that meet the needs established within the study were examined and then narrowed down by eliminating those areas that had issues such as flood plain, steep slopes or inadequate utilities to the area. The best way to increase the patrol efficiency for the Police is to locate these new facilities near roadways that will provide the officers at those locations the greatest and most rapid access to those parts of the City that are within their precinct or sector (See *Figure 1 - Current Police Beat Map* in the Appendix to this section).

The initial step of the process centered on an analysis of all incidents generated by or responded too by the Columbia Police during the 2010 and 2011 calendar years. The Police furnished graphic documentation of these incidents in the form of colored maps indicating areas with higher rates of calls for service (See *Figures 4 and 5* respectively in the Appendix to this section). Additionally, the City made available to the study team a study for locations of two precinct stations done by GIS students in the Department of Geography at the University of Missouri. This student study was based on Police data from calendar years 2008 and 2009 (See *Figures 2 and 3* respectively in the Appendix to this section). By combining the data a trending of calls for service over the last four years was clear.

The next step involved analysis of the several potential areas to locate the proposed new facilities. Drive time “rings” were generated for each potential location which indicates travel times from the facility location. Rings were generated for four, eight and twelve minute travel times. Each additional four minutes of travel time equates to an additional sixteen minutes of un-patrolled operating time in that area. The reason for this is travel time at the beginning and end of each patrol shift.

Methodology (Continued)

By analyzing this series of drive time rings and looking for the combination of locations that provides the most complete coverage for the City as a whole, but with particular attention paid to providing coverage of all of the calls-for-service "hot spots", it is possible to settle upon the areas that provide the greatest operational efficiency for the Police. These locations matched reasonably closely with those proposed in the student study (See *Figure 7 – University Study Recommended Locations* in the Appendix to this section). However, further steps of analysis are needed.

The next steps involve projections into the future. Conversations with the City of Columbia Planning Department staff established where the predicted growth is expected to occur. The planning department also provided access to the regional thoroughfare plan which will have an impact on the future ability of the Police to provide patrol coverage within the City (See *Figure 8 – Regional Thoroughfare Plan* in the Appendix to this section).

City growth is expected in all directions over the 20 years, however, the direction of the greatest growth related to population increase, and thus likelihood of increased calls for service, is to the northeast within the quadrant defined by Interstate 70 and US Highway 63 and bisected by Missouri Route "B". This region has the fewest natural barriers to growth. Substantial, though somewhat less dense, growth is expected to the southeast though that growth has natural limits defined by large conservation and nature research areas. Growth to the northwest and southwest is expected to be hampered by issues of access caused by flood and conservation areas around the Missouri River and its tributary creeks, as well as existing parks and nature areas already set aside. These predicted growth patterns pull the ideal proposed areas further away from downtown to both the north and the south (See *Figures 9, 10 and 11* in the Appendix to this section). Both areas shift to the east.

The last predictive step is future mobility as indicated by the thoroughfare plan. The City currently has high speed access north and south via Highway 63, and east and west via I-70. Access falls off sharply when one gets away from these major corridors. The thoroughfare plan addresses this by creating a loop consisting of both expressways and major arterial roads to the south of downtown and major arterial and collector roads north of downtown. By further shifting the proposed locations to areas near these new high speed corridors access is increased throughout the City. (See *Figure 12 – Thoroughfare Plan / Issues Composite* in the Appendix to this section).

Conclusions for Site Locations

As noted above, the location of the downtown facility is always the site of the current Police Facility. The downtown facility would likely service beats 20, 70 and 70D (See *Figure 1 - Current Police Beat Map* in the Appendix to this section). While the goal of this study is not to identify specific pieces of property for consideration, it is to provide fairly defined areas in which to look for properties that meet the space requirement needs for whichever facility option the City ultimately decides to pursue. As noted in the methodology section above, access is a primary factor for the Police facilities being considered. Thus, two areas have been established as being the most advantageous for these facilities:

- The north facility should be in the area of the intersection of Paris Road (Missouri Route B) and East Brown Station Road. This facility is anticipated to service beats 10, 30 and 40 (See *Figure 1 - Current Police Beat Map* in the Appendix to this section).

- The south facility should be in the area of the intersection of Grindstone Parkway and South Rock Quarry Road. This facility is expected to service beats 50, 60 and 80 (See *Figure 1 - Current Police Beat Map* in the Appendix to this section).

The Public Safety Joint Communications / Office of Emergency Management facility location is not as critical to locate in relation to high speed access. This is a “go-to” facility in a time of crisis, not a daily heavy use facility in the nature of the Police facilities. This is not to say that access is not an important factor. If emergency operations staff and civic leaders are unable to reach the facility in a timely manner, then potentially valuable time could be lost early in an activation event. Also, access to some critical infrastructure is needed. The site will need to be provided with fiber-optic cable. This allows the EOC to continue its critical command and control function even if no local radio system tower has survived the activation event. Thus, potentially advantageous sites for this facility can be in a wider variety of locations than the Police facilities. One consideration would be to co-locate this facility with either the north or south Police facility. Just to be clear, by co-location it is not intended that the PSJC/OEM and the Police facility be located within the same structure, merely that they share the same site.

Conclusions for Site Locations (continued)

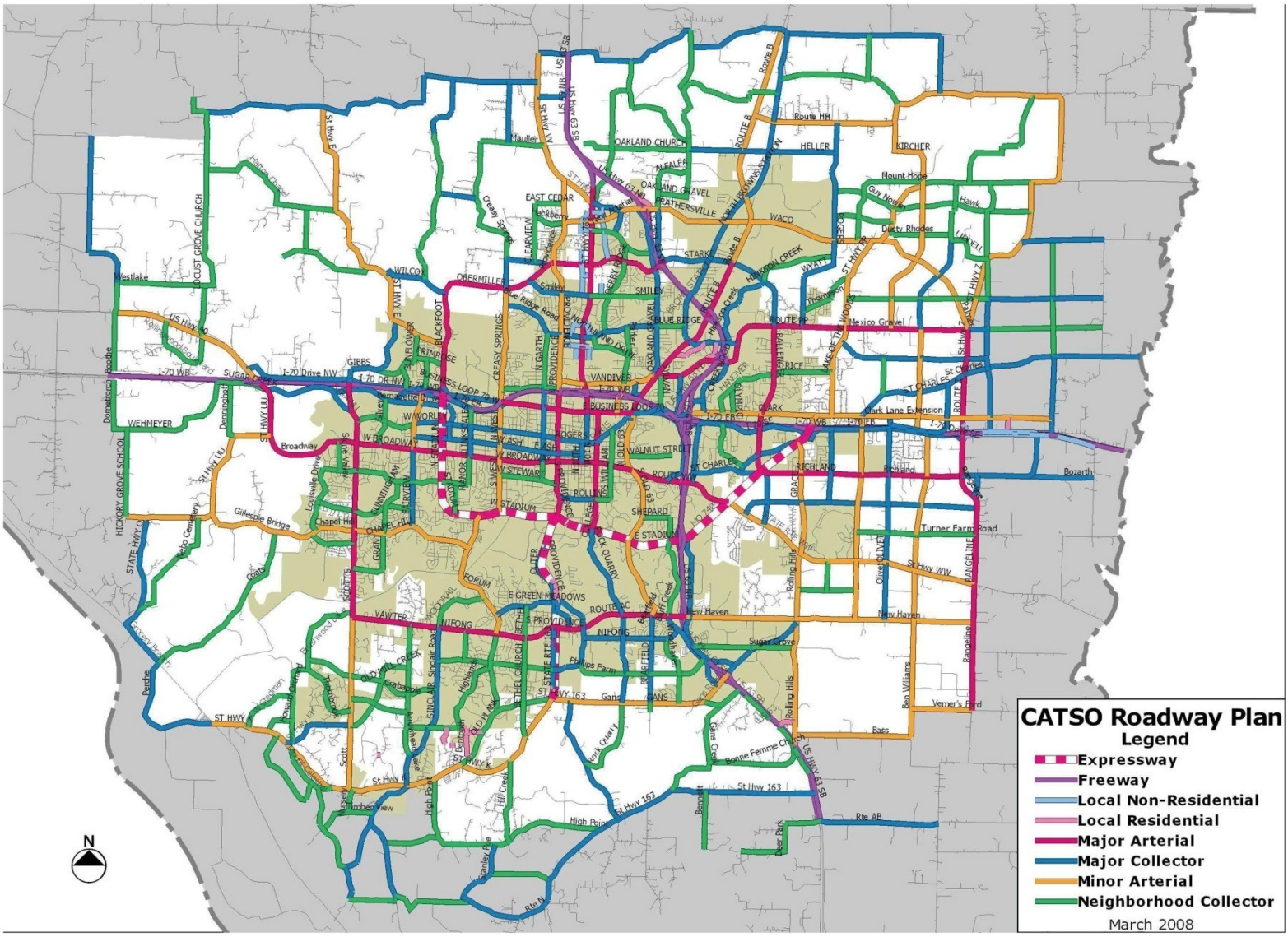
A pair of factors on the positive side of such an arrangement would be:

- One less site needs to be acquired. This simplifies the overall process.

- Some cost savings could be realized by sharing of a limited number of functions: i.e., all staff could park in one secure lot reducing number of gates and amount of fencing required; the community room at the police facility could be eliminated and the Media Room at PSJC utilized for this function.

One concern for the PSJC/OEM as a critical use facility is an assault on the facility or being caught up in the damage from an assault on the neighboring police facility. The likelihood of either scenario is extremely low at this time. If such an occurrence were to become more likely in the future it is impossible to predict if the PSJC/OEM would be targeted, a scenario in which the location of an adjacent police facility may act as a deterrent; or if the Police might be targeted and the PSJC/OEM facility put at risk by proximity. The low probability and unpredictability of these scenarios would tend to exclude them as deciding factors in the decision to co-locate. Their inclusion here is due to the discussion of this as a concern in meetings with staff and therefore bears mentioning within this study.

Figure 8 – Regional Thoroughfare Plan



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